PVM-1220

ADJUSTMENT MANUAL
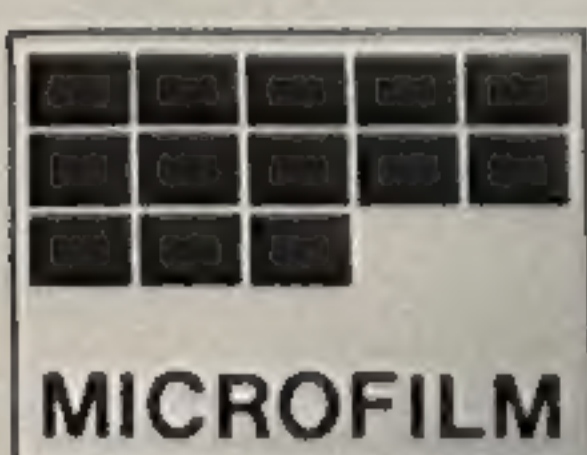
US Model
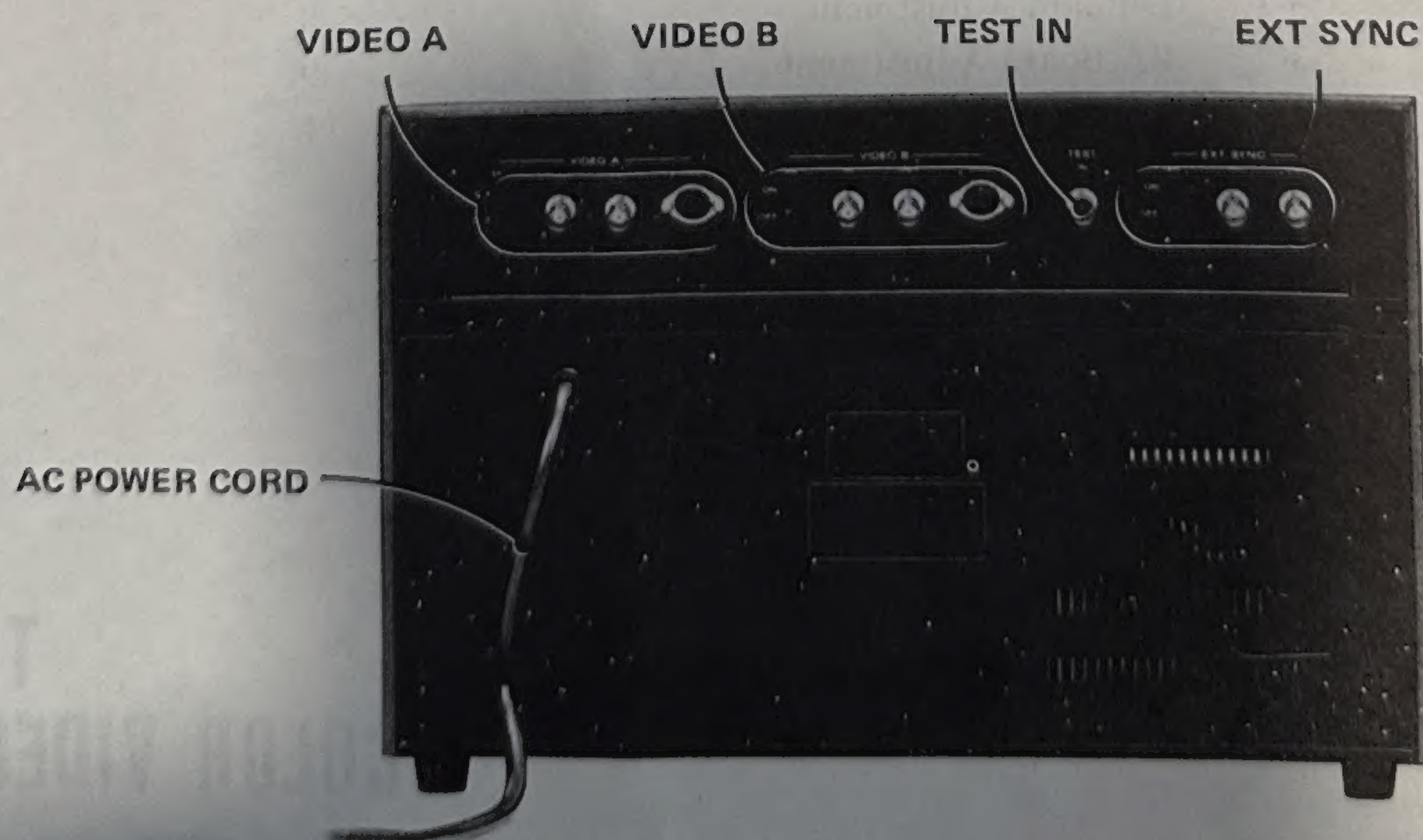*Canadian Model*

November, 1982

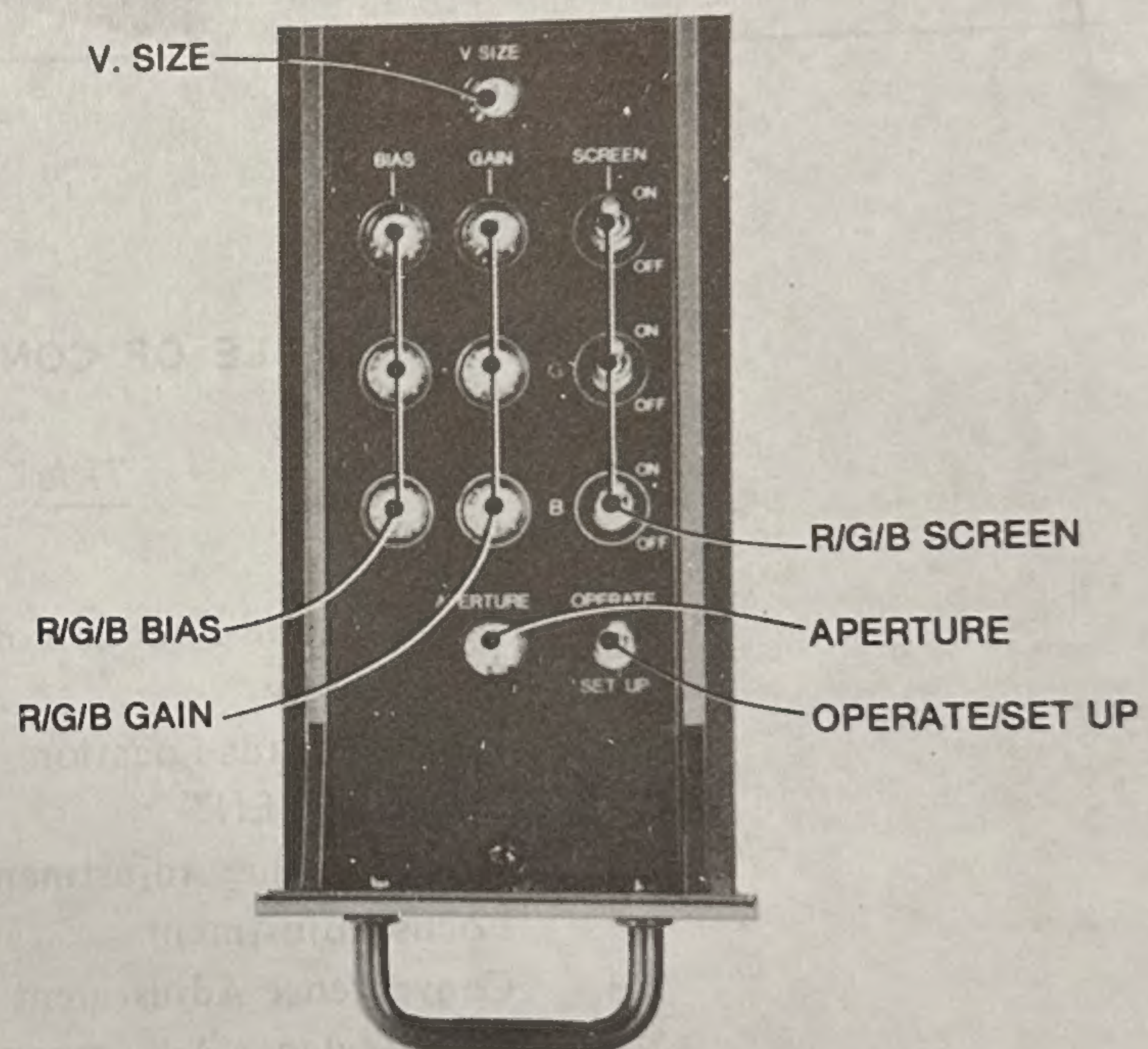## TABLE OF CONTENTS

TRINITRON®
COLOR VIDEO MONITOR

SONY®

MICROFILM

1. GENERAL

1-1. LOCATION AND FUNCTION OF CONTROLS

POWER
INPUT
DELAY
MODE
SYNC
SCAN
BRIGHTNESS
CONTRAST
HUE
COLOR

TALLY LAMP

pull out

V. SIZE

R/G/B SCREEN
R/G/B BIAS
APERTURE
R/G/B GAIN
OPERATE/SET UP

VIDEO A   VIDEO B   TEST IN   EXT SYNC
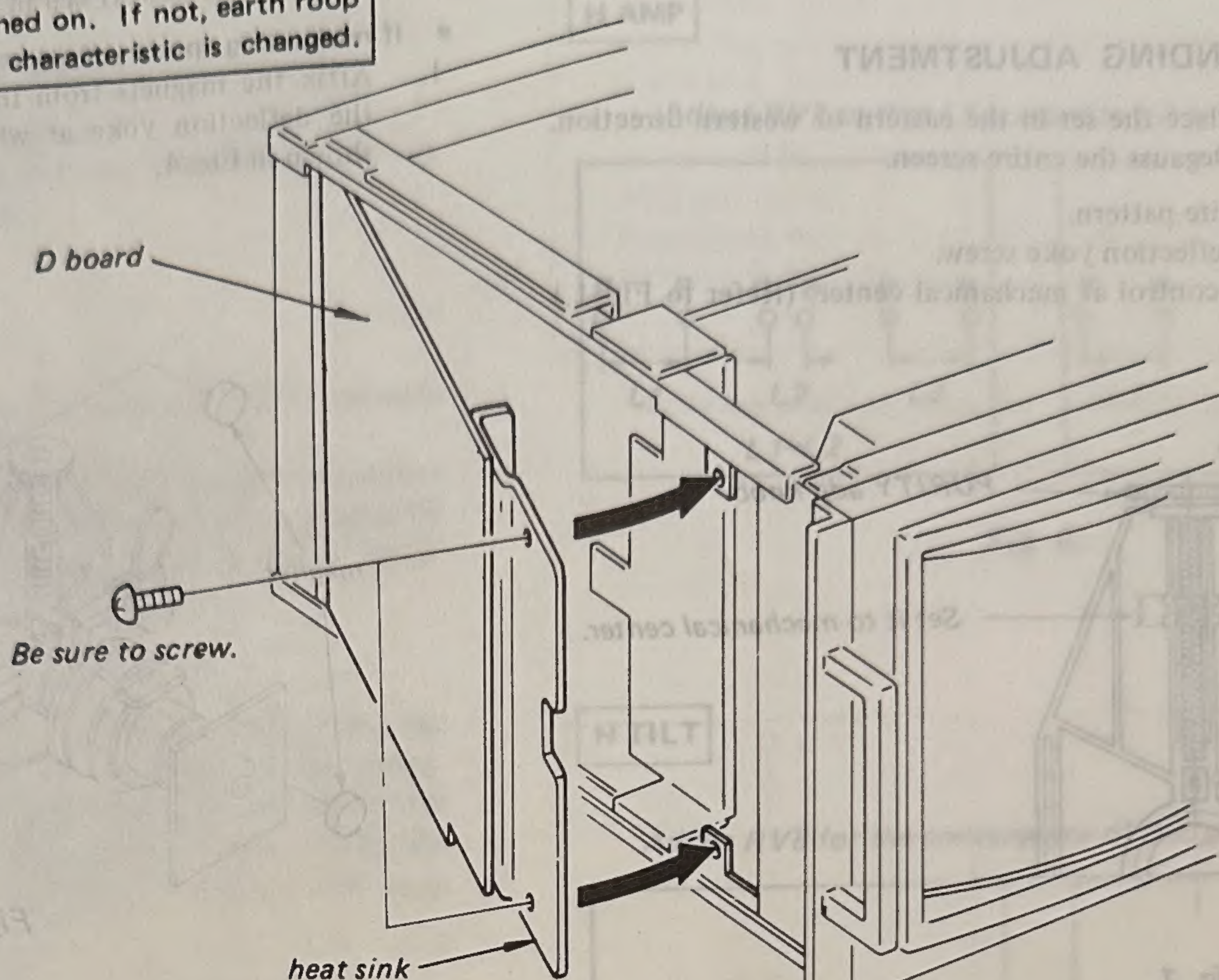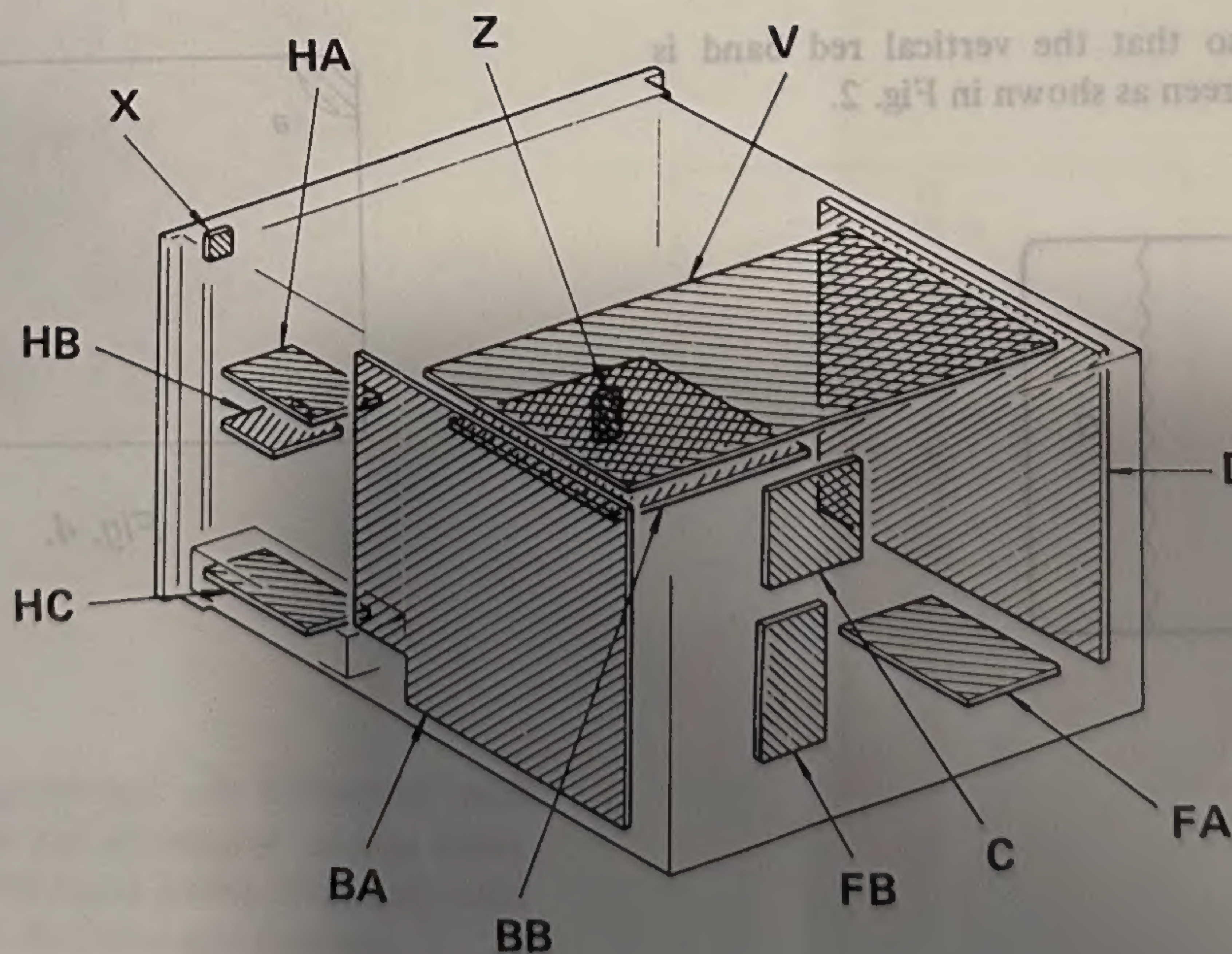
AC POWER CORD
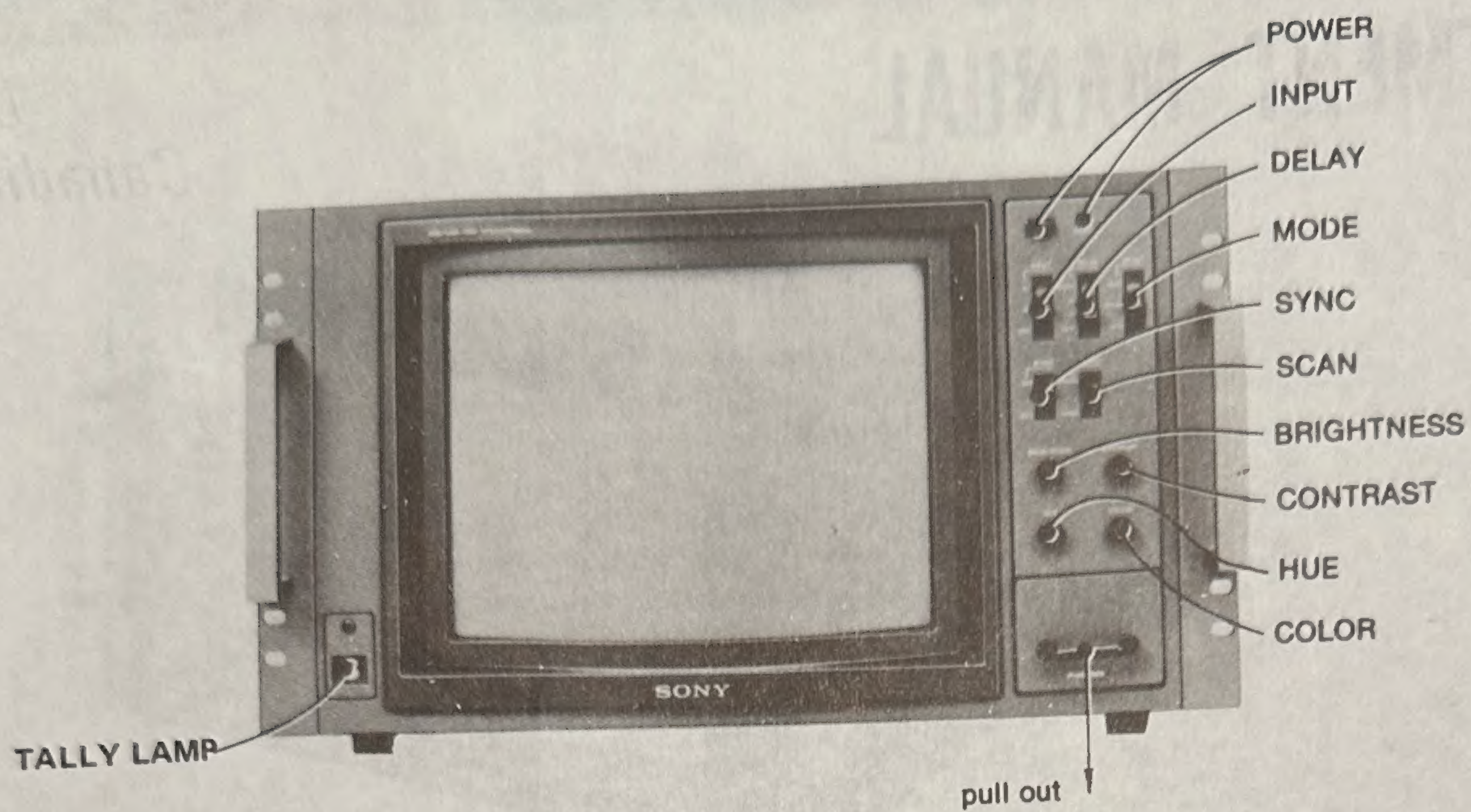
1-2. DISASSEMBLY

> **CAUTION**
> Be sure to perform that heat sink of D board is screwed to chassis before power switch is turned on. If not, earth roop of deflection circuit is changed, characteristic is changed.

D board

Be sure to screw.

heat sink

1-3. CIRCUIT BOARDS LOCATION

X
HA
Z
V
HB
D
HC
BA
BB
FB
C
FA

—3—

2. BASIC ADJUSTMENT

When replacing the CRT, perform the adjustments as described below.

Test Equipment Required

1. Color Pattern Generator
2. Degausser

2-1. BEAM LANDING ADJUSTMENT

Preparation: 1. Place the set in the eastern or western direction.
2. Degauss the entire screen.

1. Feed in the white pattern.
2. Unfasten the deflection yoke screw.
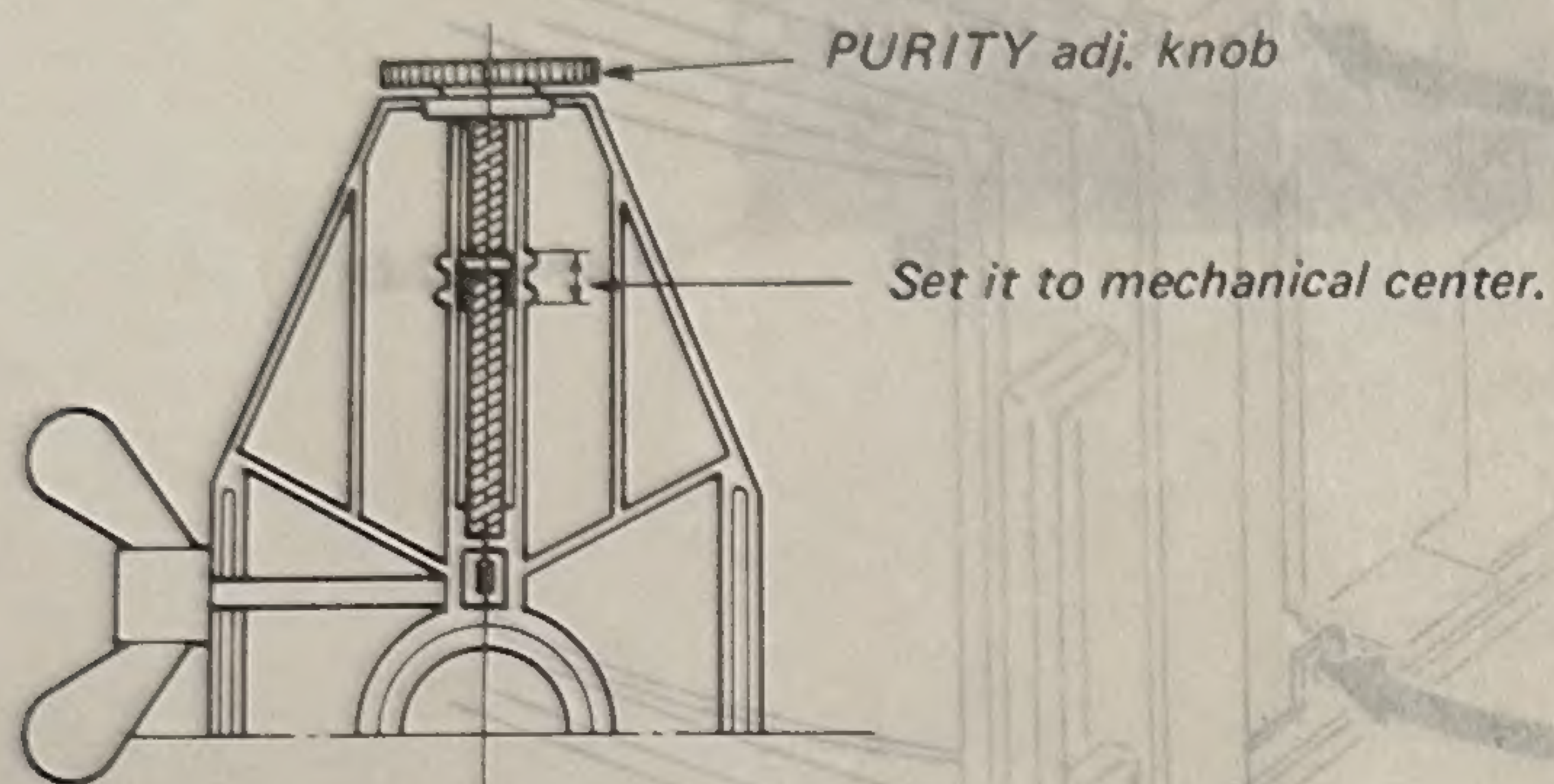3. Set the purity control at mechanical center. (Refer to Fig. 1.)

PURITY adj. knob

Set it to mechanical center.

Fig. 1.

4. Slide the deflection yoke as far forward as it will go so that it is clasely brought into contact with the CRT funnel.
5. Get a uniform red screen. (Turn off S12 and S13, and then turn on S11.)
6. Adjust the purity control so that the vertical red band is located in the center of the screen as shown in Fig. 2.
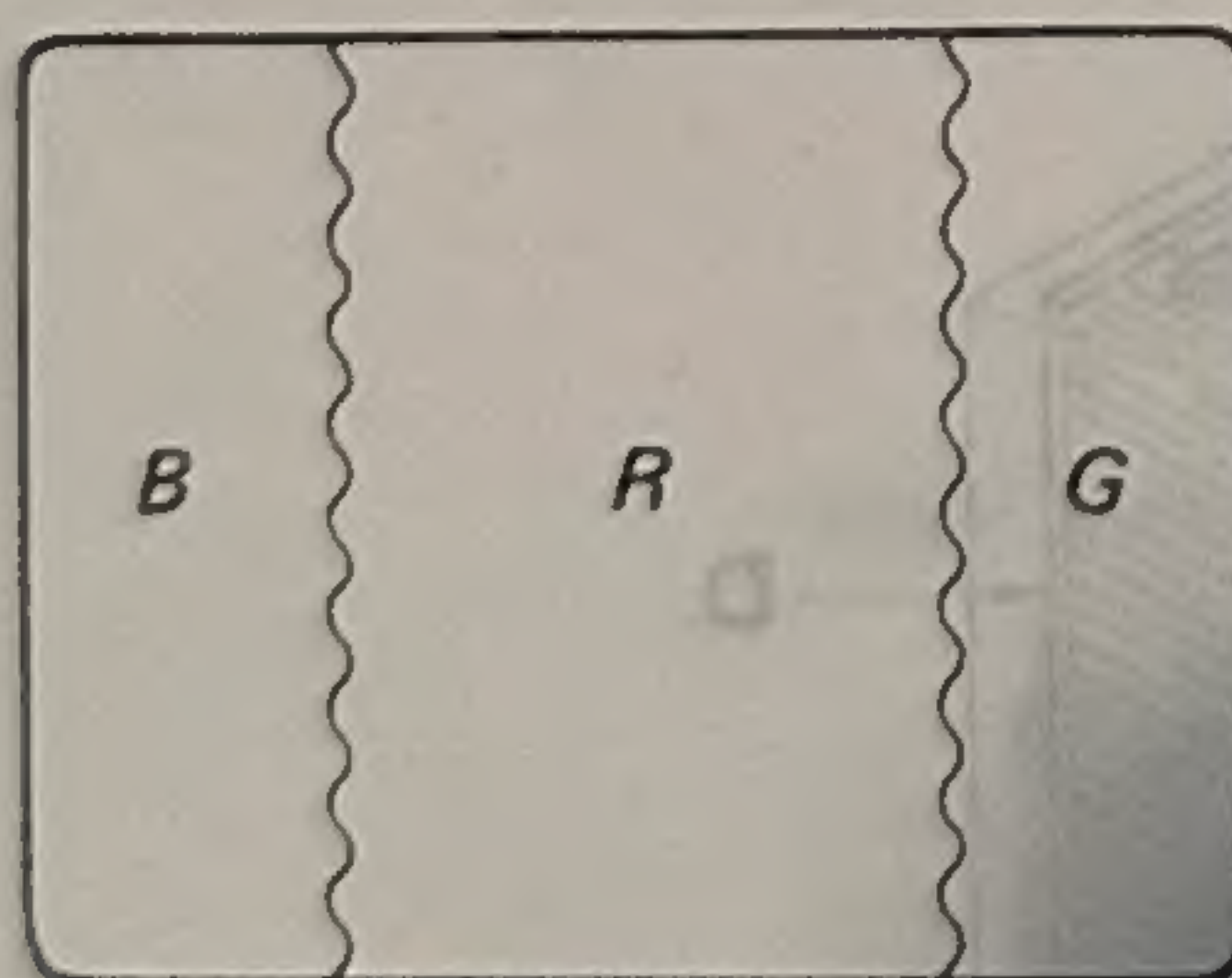

B   R   G

Fig. 2.

7. Slide the deflection yoke back for a uniform red raster.
8. Check the green and blue rasters for uniformity by performing the same way as Steps 5, 6 and 1.
9. Adjust the tilt of the deflection yoke and tighten the deflection yoke fixing screw. (Feed in the crosshatch pattern.)

• **If mislanding appears at corners of the screen.**
1. Affix the magnets from the funnel side on the periphery of the deflection yoke at which the mislanding is observed, as shown in Fig. 4.
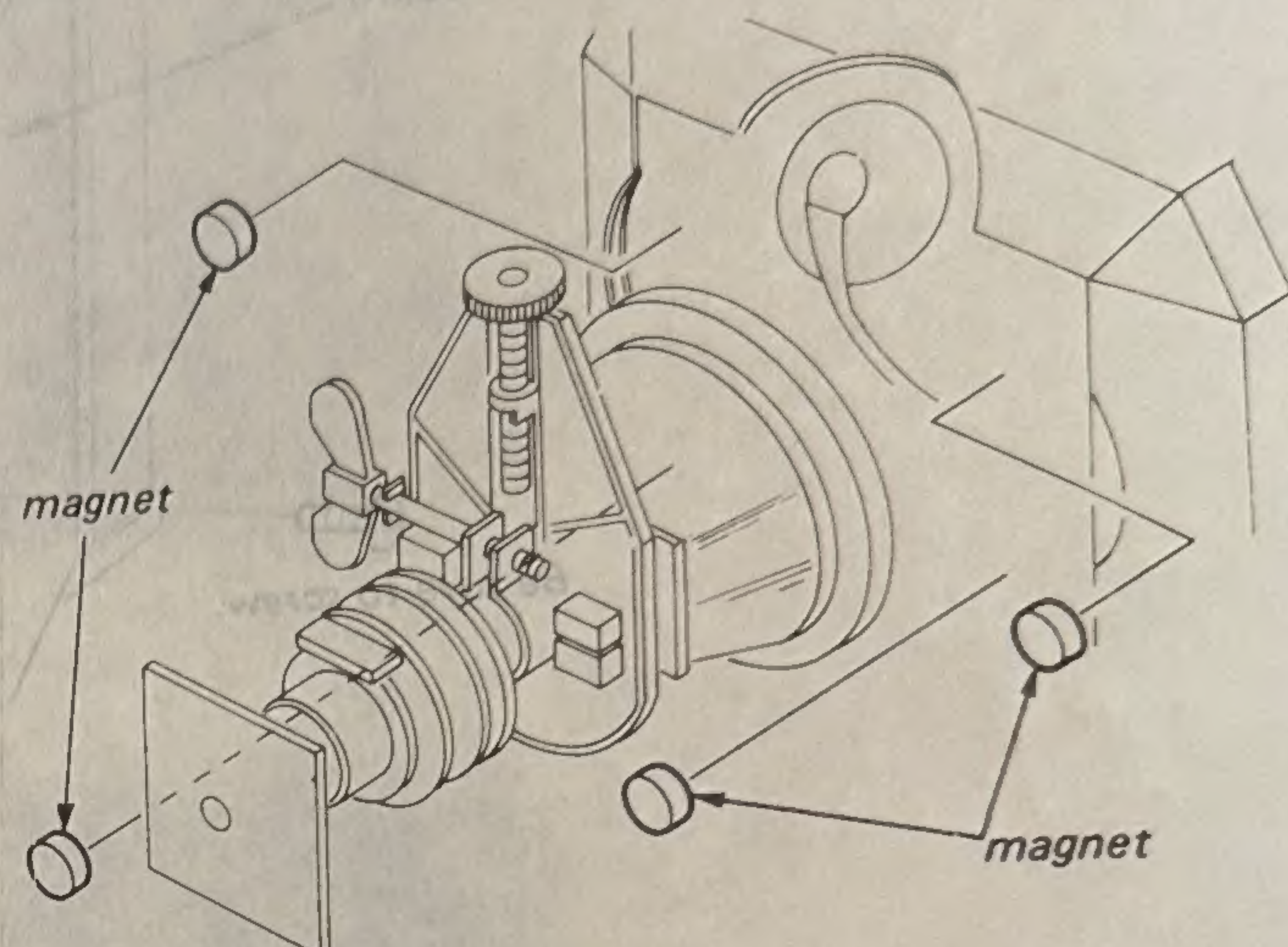

magnet

magnet

Fig. 3.

2. When the magnets are affixed at corners, degauss the front side of CRT by using a DEGAUSS switch.

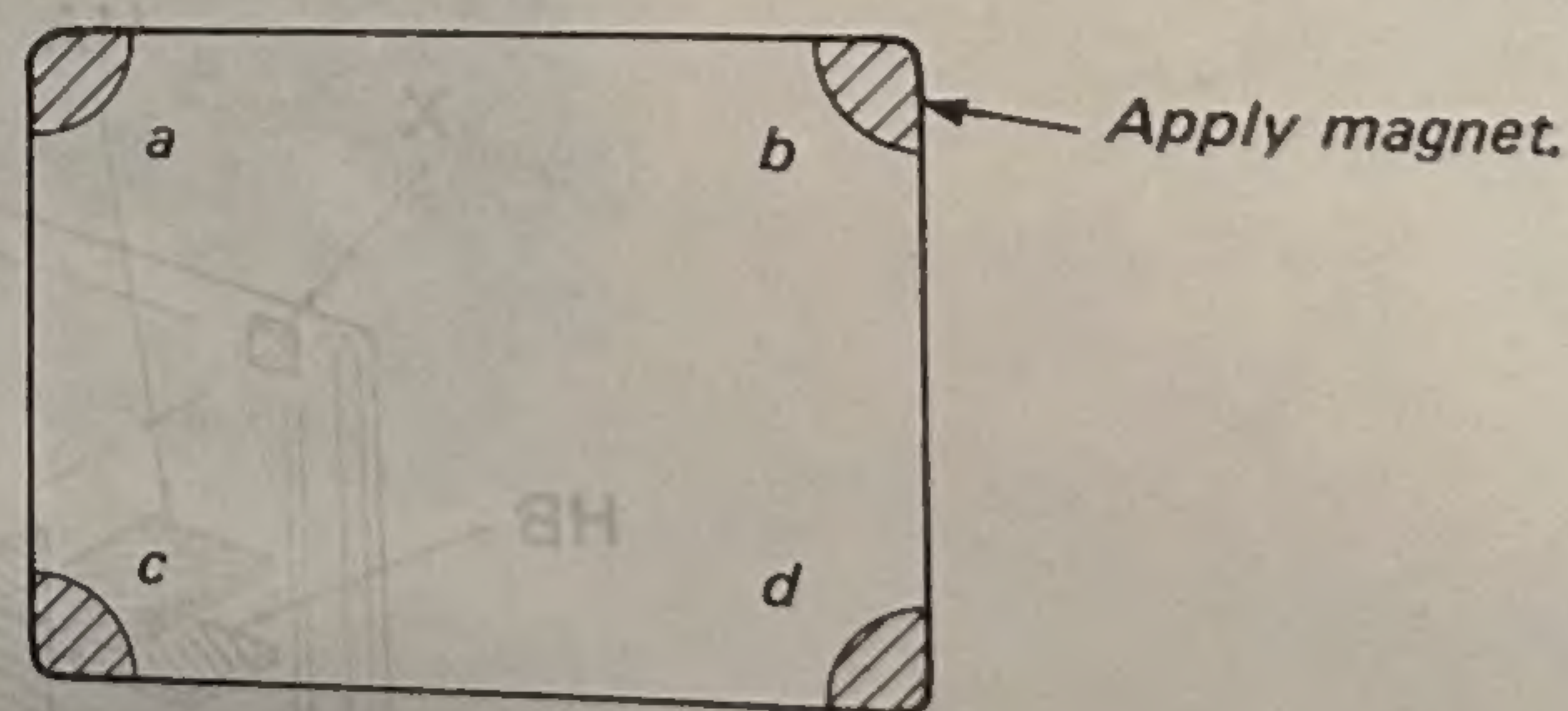a   b   Apply magnet.

c   d

Fig. 4.

2-2. FOCUS ADJUSTMENT

1. Feed in the dot pattern.
2. Adjust the FOCUS VR (RV718) on the C board so that the optimum point of FOCUS is located in the center of the screen.

2-3. CONVERGENCE ADJUSTMENT

Preparations:
1. Feed in the dot pattern.
2. Set the CONTRAST and BRIGHT VRs at the visible dot position.

1. Static Convergence

● Horizontal Static Convergence

1. Adjust the H.STAT so that the horizontal R and G are converged on the center of the screen.
2. If the horizontal B slips in the same direction over the entire screen, move the BMC magnet in the direction indicated by the arrow (a) in Fig. 5 so as to converge R, G and B. (HMC compensation)

● Vertical Static Convergence

1. Adjust the V.TILT VR (RV515) on the V board so that the vertical R and G are converged on the center of the screen.
2. If the vertical B slips in the same direction over the entire screen, turn the BMC magnet in the direction indicated by the arrow (b) in Fig. 5 so as to converge R, G and B. (VMC compensation)
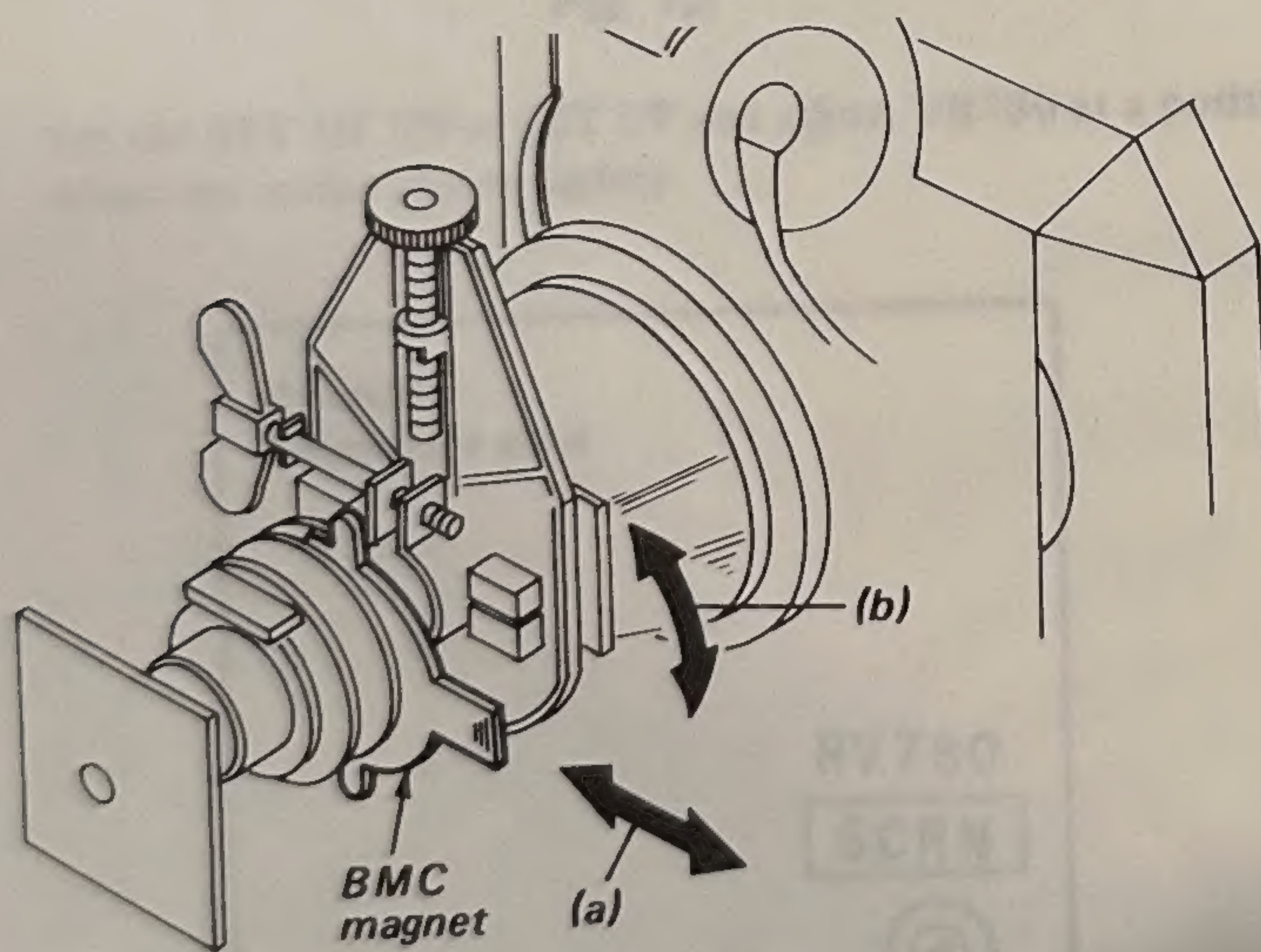

(b)

BMC
magnet   (a)

Fig. 5.

Note: 1. The HMC and VMC compensations are influenced each other, so be sure to repeat the adjustment several times.
2. There may be an insufficient focus during HMC and VMC compensations, so perform the focus adjustment.

2. Dynamic Convergence

● Adjust the VRs on the D board as follows:

H AMP

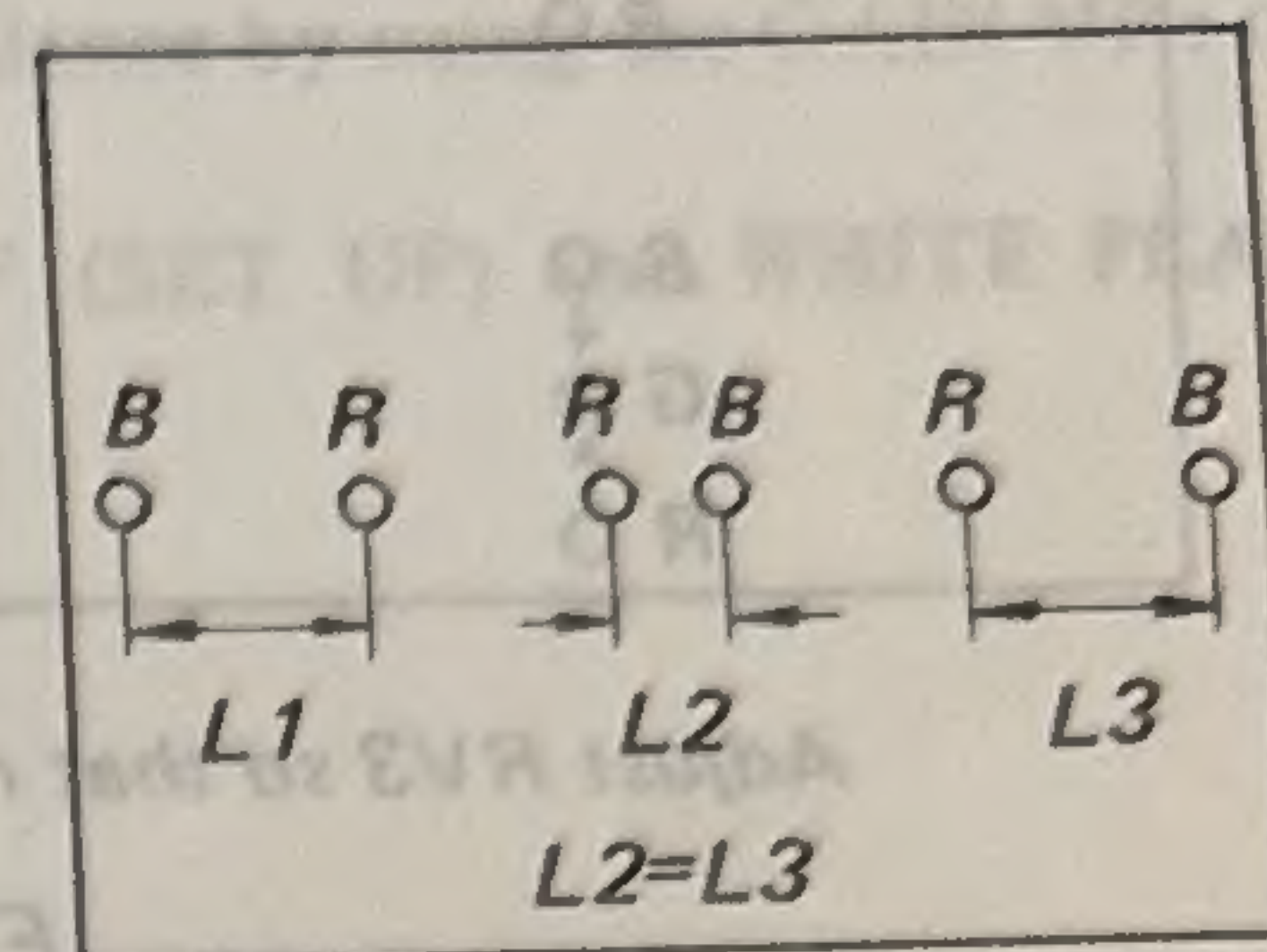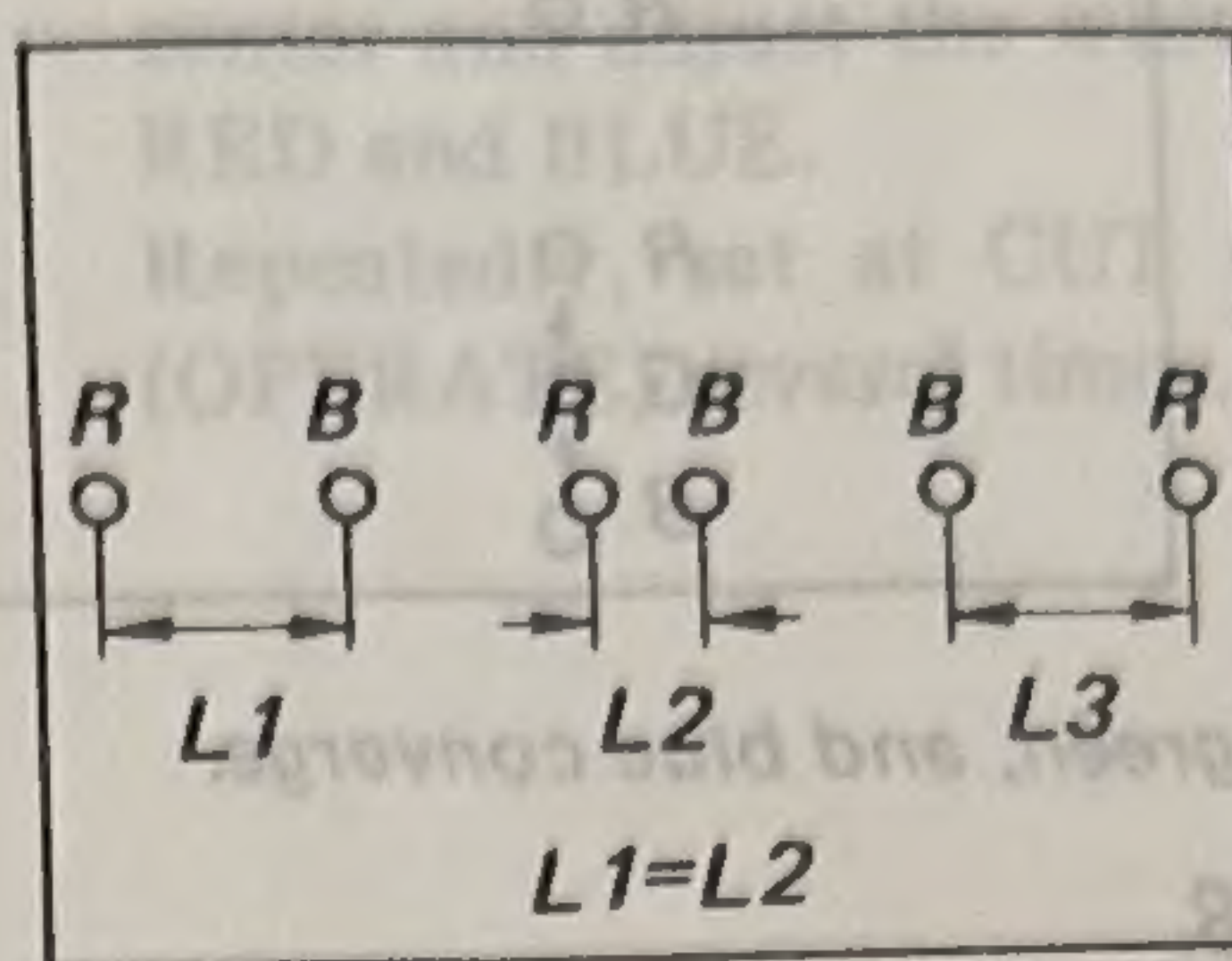*Adjust RV7 so that L1 is equal to L2 or L2 to L3.*

L1=L2   L2=L3

Fig. 6.

H TILT

Adjust RV8 for the convergence of red, green and blue.

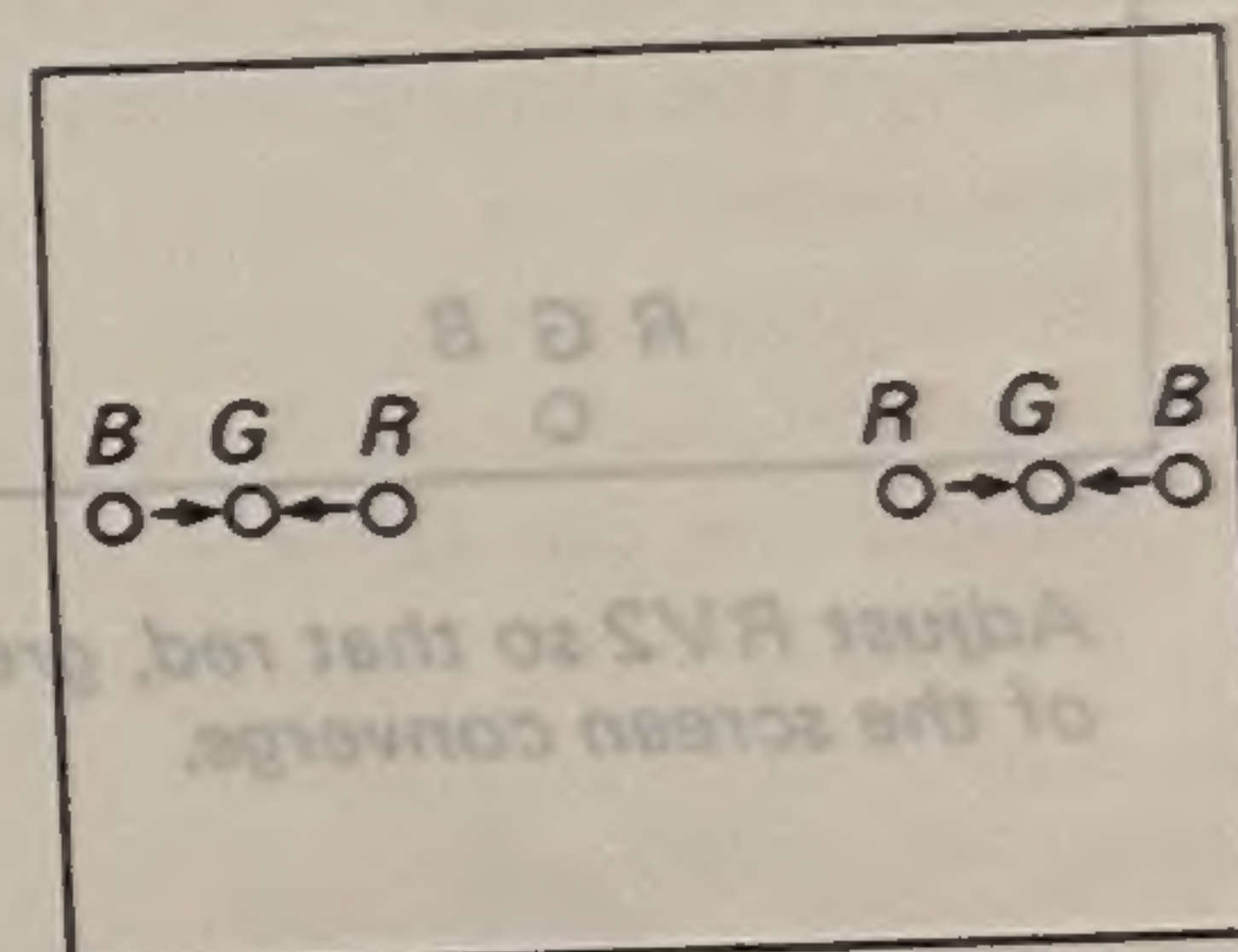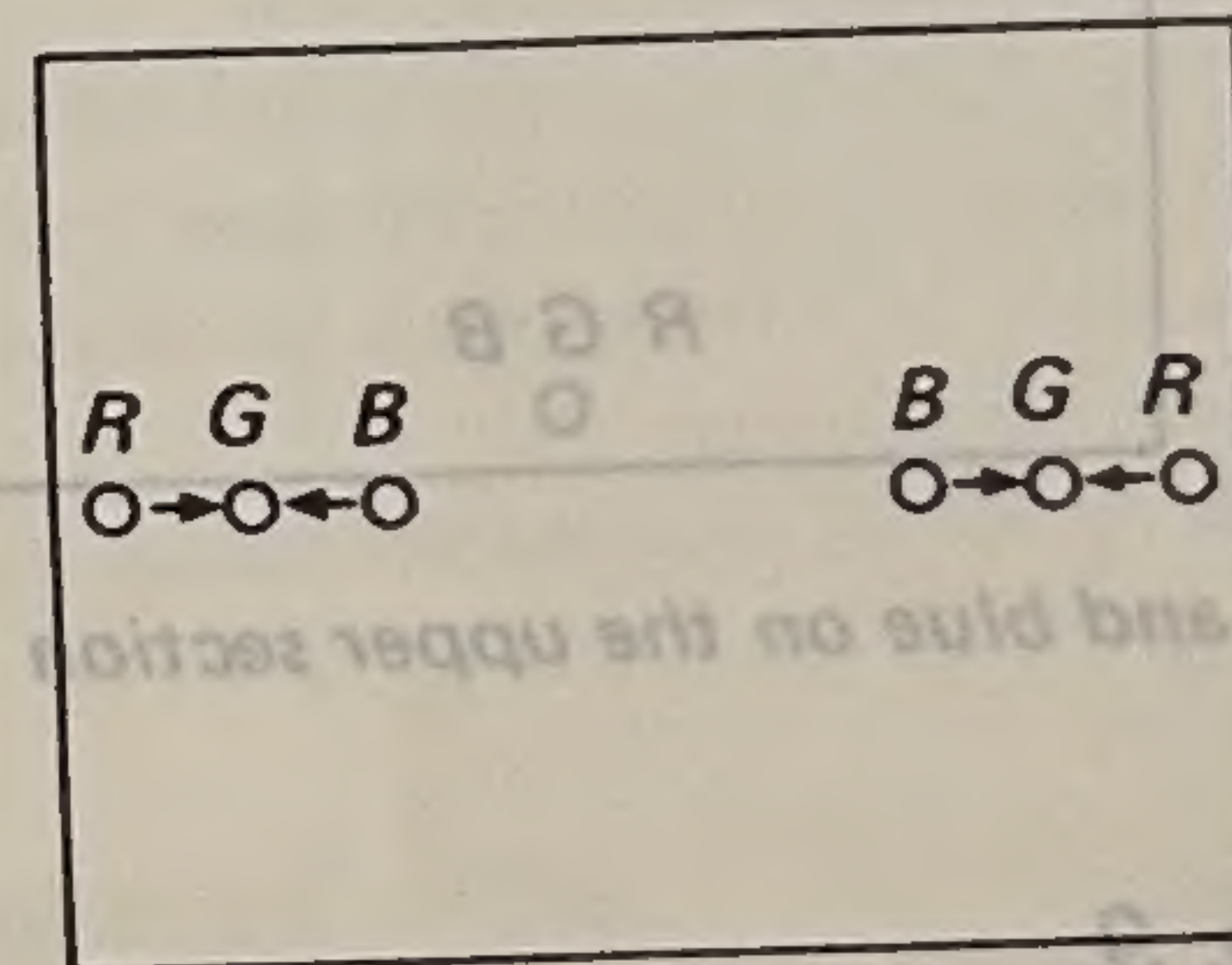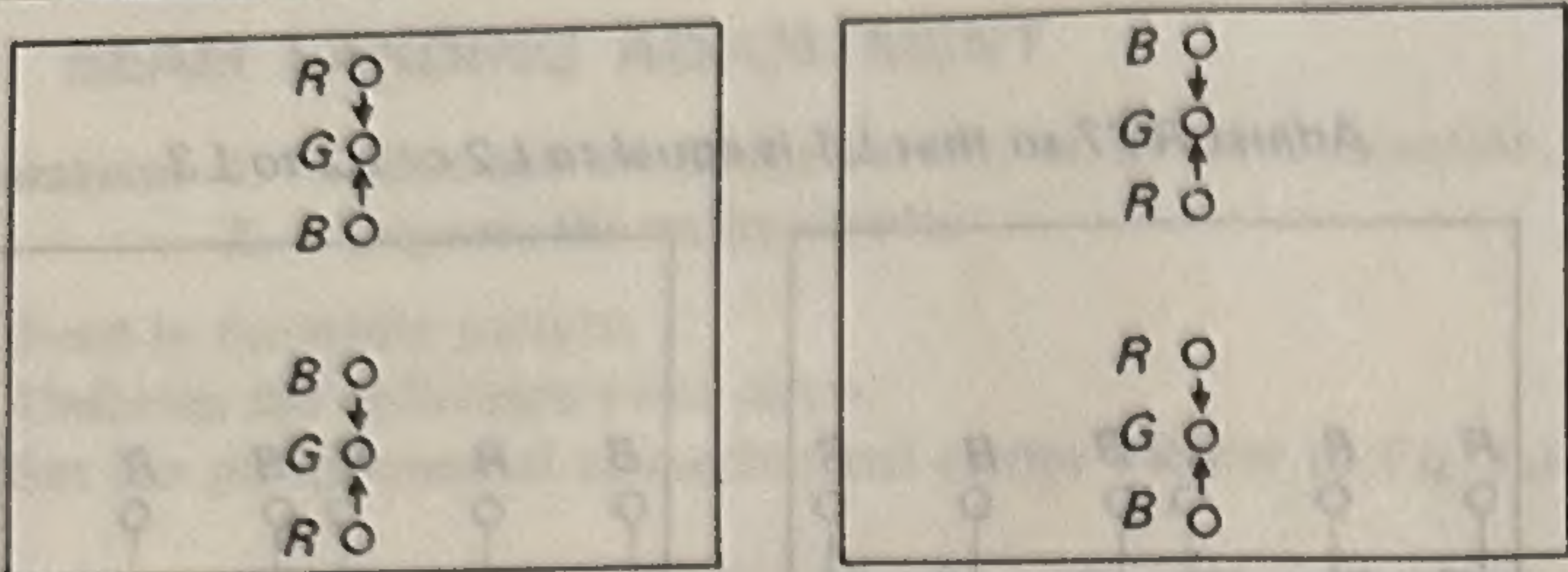*Fig. 7.*

- Adjust the V TILT-GAIN (RV514), V TILT-TOP (RV512) and V TILT-BOTTOM (RV513) on the V board, respectively.
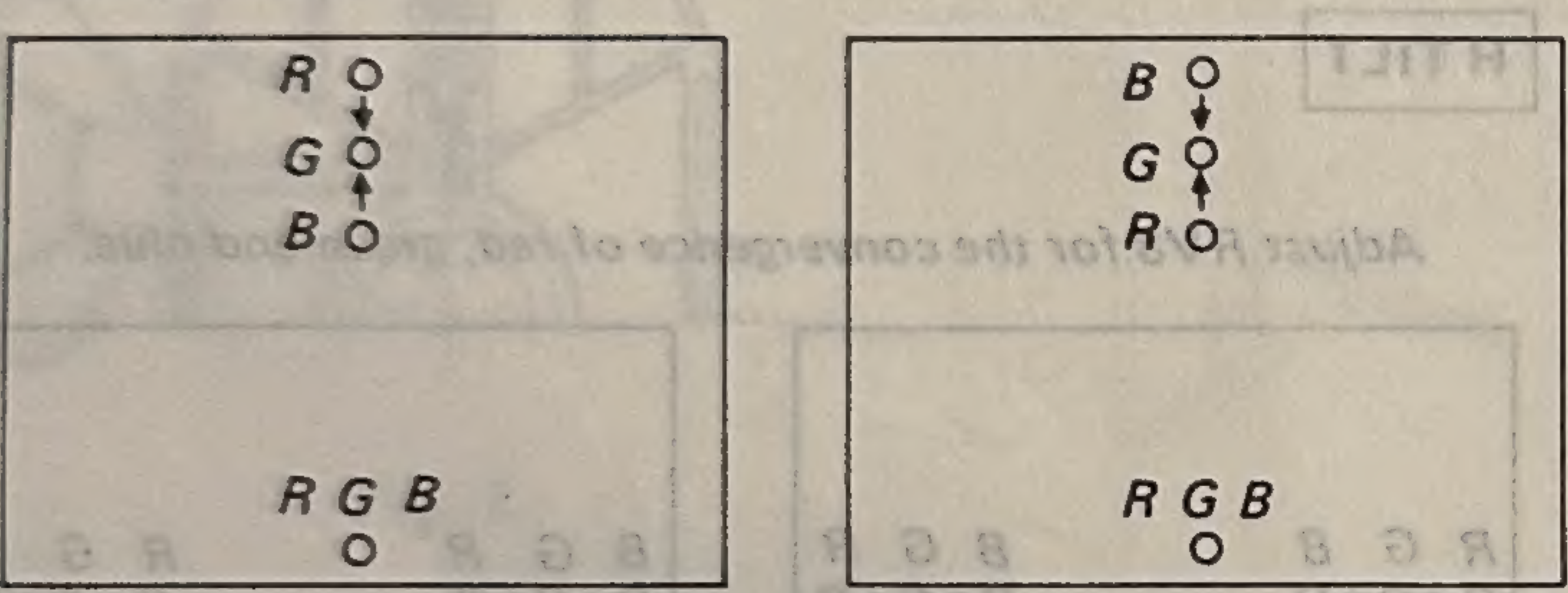
V TILT-GAIN

Adjust RV3 so that red, green, and blue converge.

Fig. 8.

V TILT-TOP

Adjust RV2 so that red, green, and blue on the upper section of the screen converge.

Fig. 9.

V TILT-BOTTOM
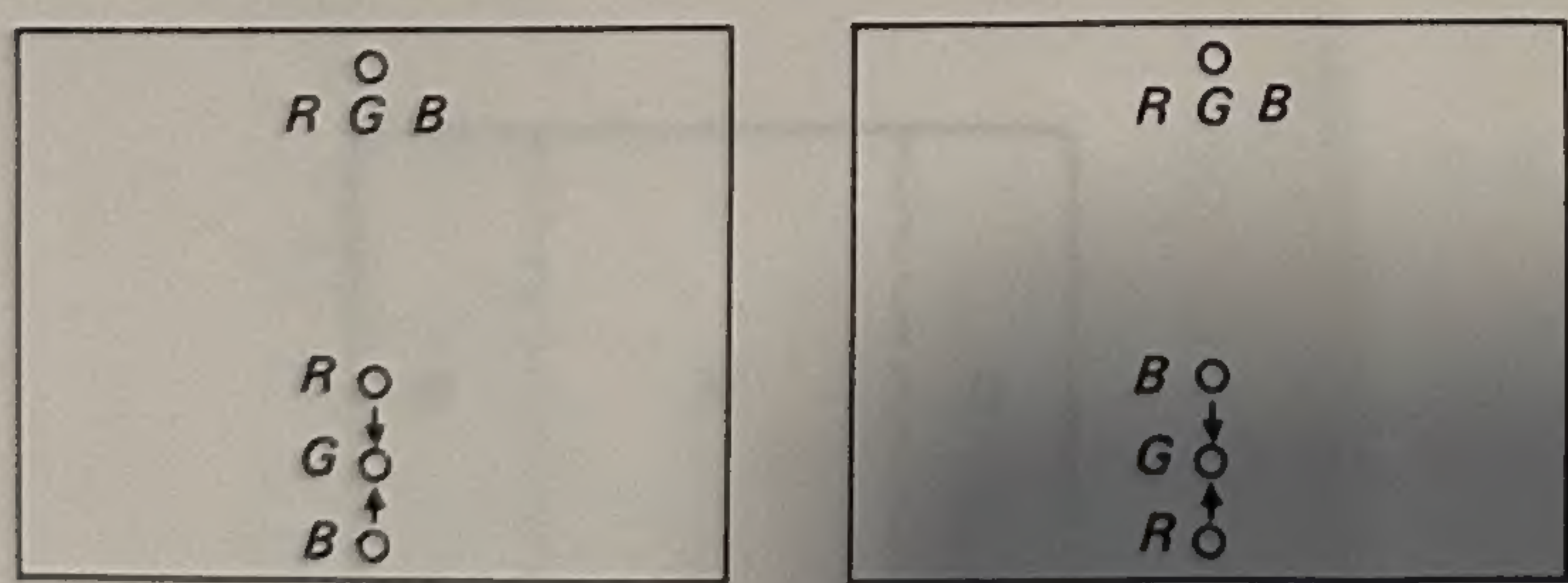
Adjust RV1 so that red, green, and blue on the lower section of the screen converge.

Fig. 10.

- If misconvergence appears at corners of the screen, Affix the permalloy Ass'y between the deflection yoke and funnel corresponding to the misconverged corners, as shown in Fig. 12.

permalloy assembly

Fig. 11.

Note: After the landing and convergence adjustments are completed, fix the purity magnet and BMC magnet by using the white paint.

BMC magnet

2-4. WHITE BALANCE ADJUSTMENT

1. Feed in the white pattern.
2. Connect the R, G and B cathodes of CRT to +B 95 line (D3 connector pin 1 on the D board) by using a clip cord.
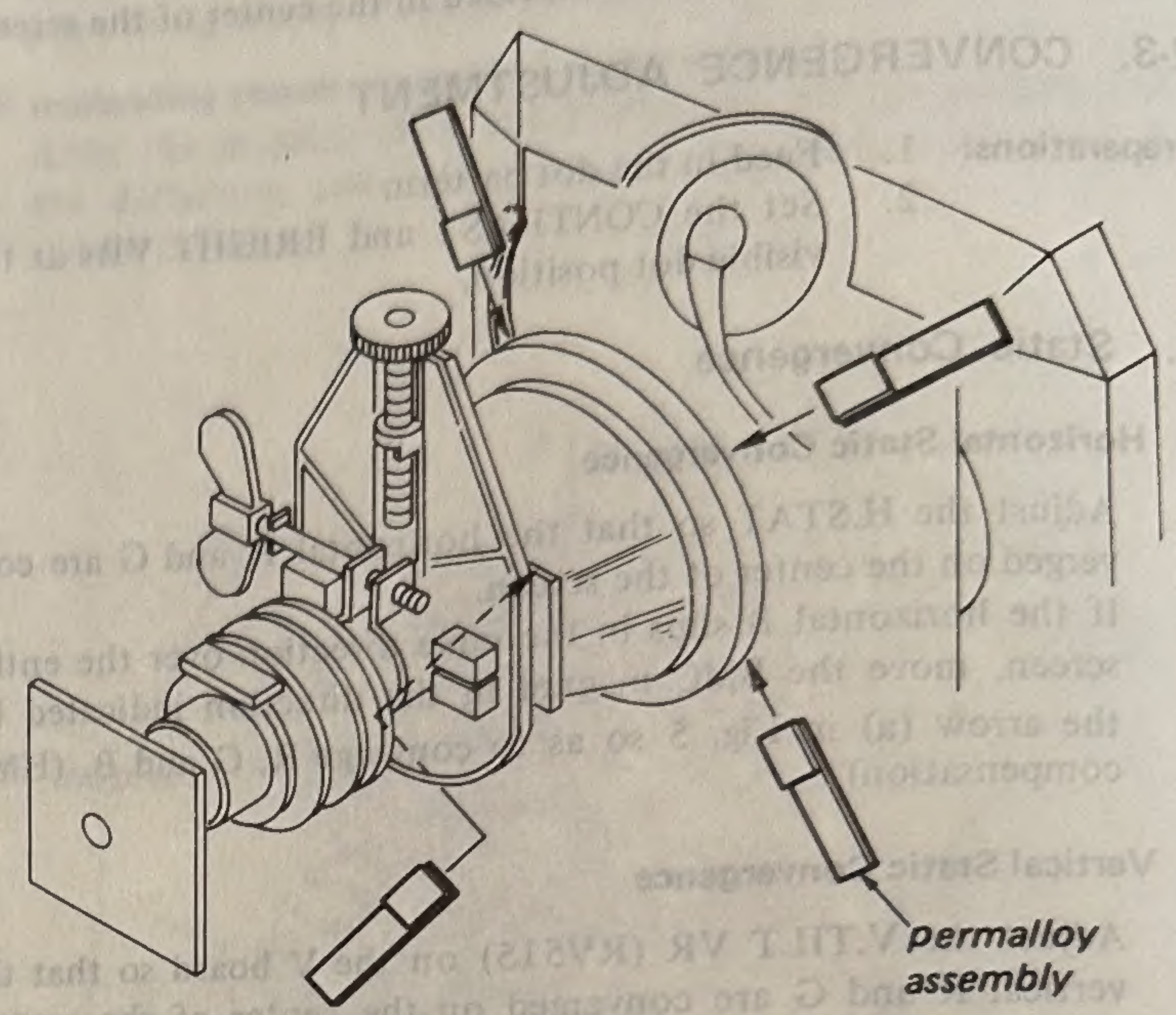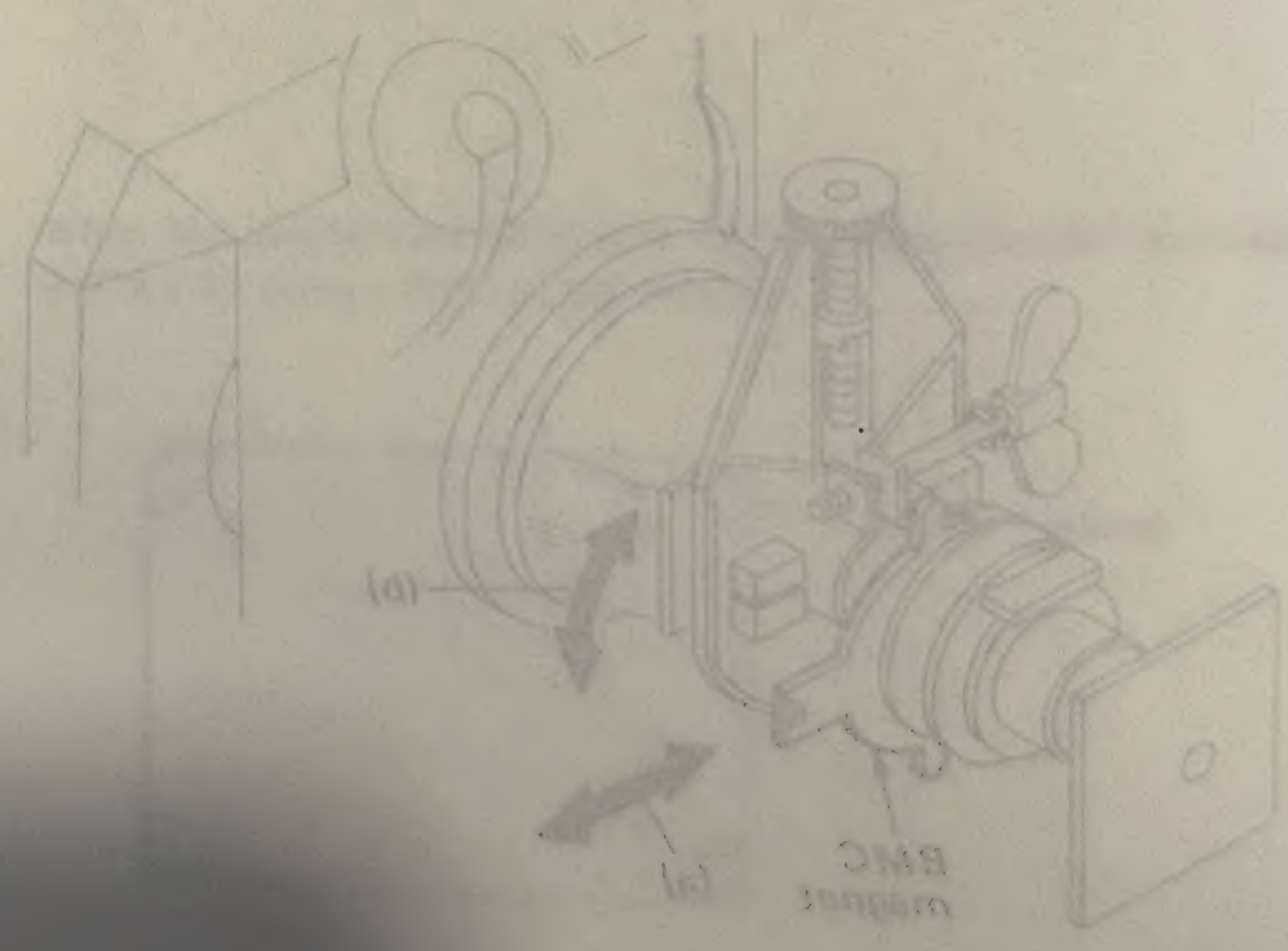
R780

CRT 1

R782

R781

Clip cord

+95V

D3

T803

D Board
(conductor side)
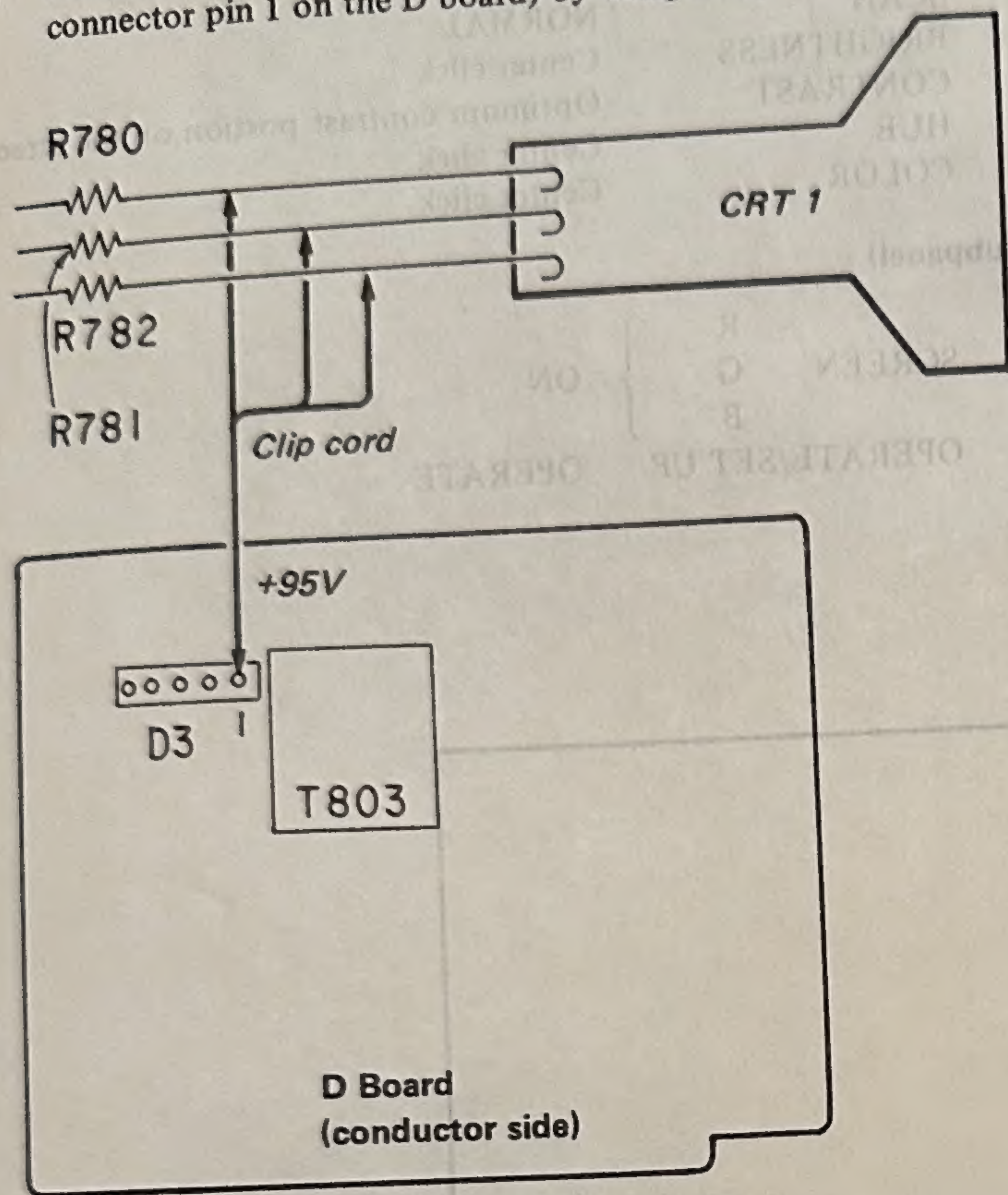
Fig. 12.

3. Set the SET UP SW at SET UP and adjust VR780 at a position where the screen shines slightly.

C Board
(conductor side)

RV780

SCRN
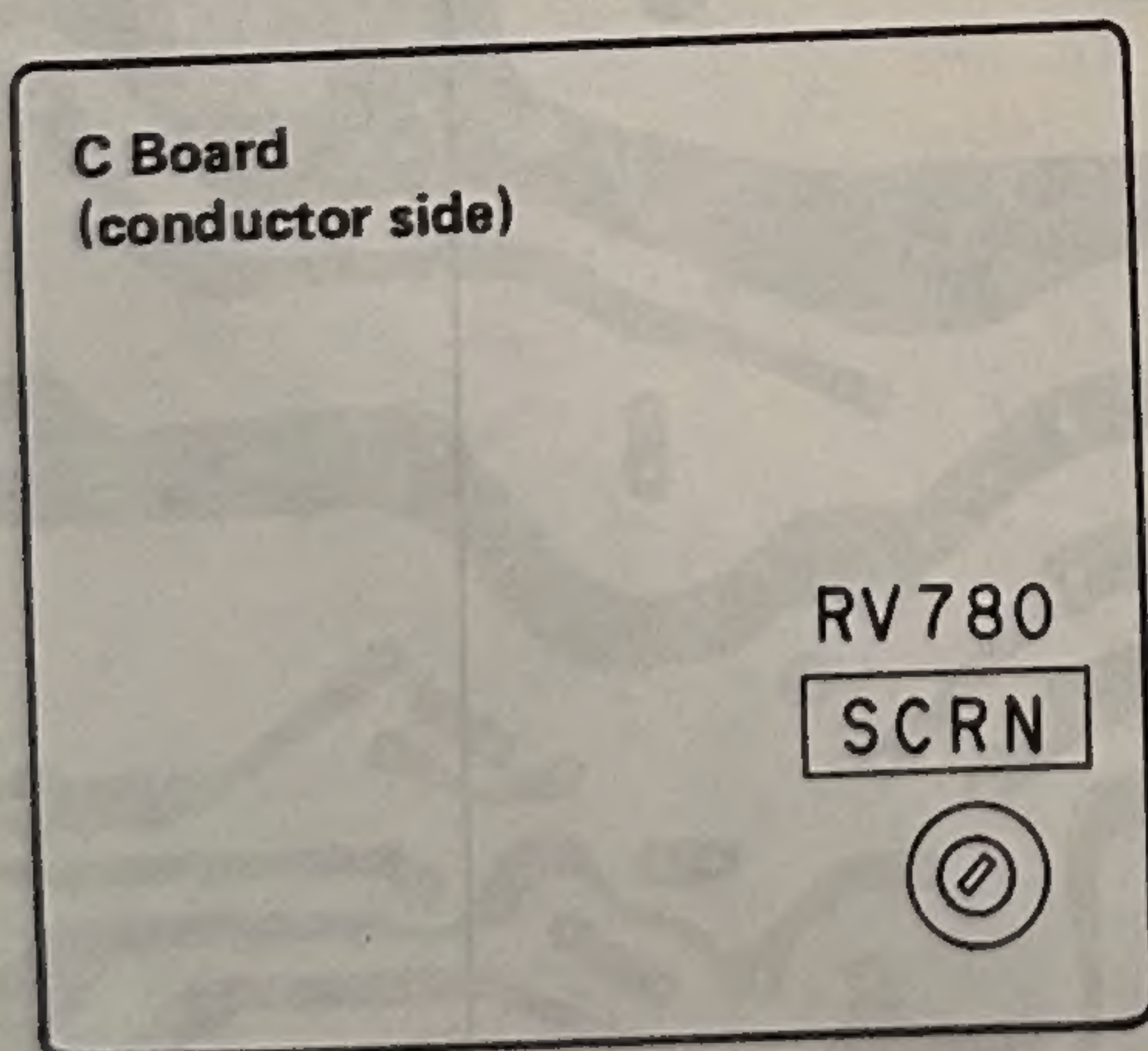
Fig. 13.

4. Remove the clip cord, set the GAIN VR at mechanical center and the CUT OFF SWs of R, G and B at ON. Set the BRIGHT VR at mechanical center.
5. Adjust the white balance using the BIAS VR. (If a color meter is provided, set at 6500°K.
6. Set the SET UP SW at OPERATE.
7. Adjust the white balance using the GAIN VR. (If a color meter is provided, set at 6500°K.
   At this time, set the GAIN VR of GREEN at mechanical center and adjust the white balance by using the GAIN VRs of RED and BLUE.
8. Repeatedly, set at CUT OFF (SET UP) and WHITE PEAK (OPERATE) several times.

3. ELECTRICAL ADJUSTMENT

Tools and equipment required

1. Ocilloscope
2. Color bar generator
3. Digital multimeter
4. Autotransformer

• Set SWs and control VRs as follows:

(Front panel)

|	
DELAY	NORMAL
MODE	AUTO
SYNC	INT
SCAN	NORMAL
BRIGHTNESS	Center click
CONTRAST	Optimum contrast postion on the screen
HUE	Center click
COLOR	Center click

(Subpanel)

SCREEN   R
         G   } ON
         B

OPERATE/SET UP   OPERATE

3-1. D BOARD ADJUSTMENT

Adjustment of Horizontal Width, Linearity and H CENTER

1. Supply the monoscope signal to VIDEO IN.
2. Set SCAN at NOR and DELAY at NOR.
3. Adjust H CENT (RV809) so that the center of the monoscope pattern is located in the center of the screen.
4. Adjust the core of H linearity coil (L808) at a position where the number of right and left frames is equally counted from the center of the monoscope pattern at a little more inner one than the maximum horizontal width position.
5. Adjust the pin horizontal width to 15.75 frames by using the RV806.
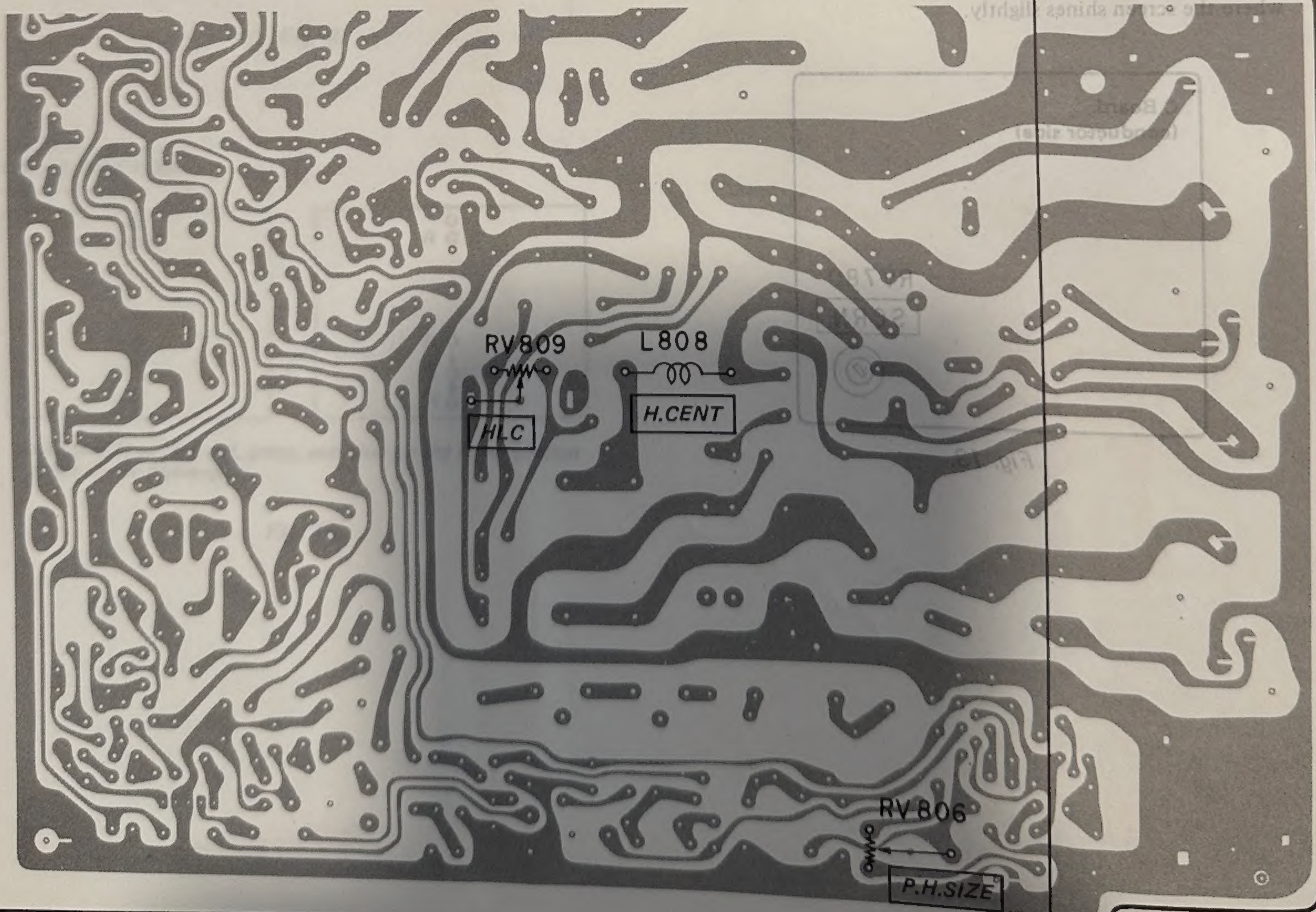
3-2. BA BOARD ADJUSTMENT

Comb Filter Adjustment

1. Supply the color bar signal to VIDEO IN.
2. Adjust RV301 and T301 so that the chrominance component on the waveform of Q304 emitter is minimized.
   (Observe the oscilloscope in the range of 20mV/DIV.)

Oscilloscope

3.58 Trap Adjustment

1. Supply the color bar signal to VIDEO IN.
2. Set DELAY at V and SCAN at NOR, respectively.
3. Adjust T304 so that the chrominance component on the waveform of Q347 emitter is minimized.
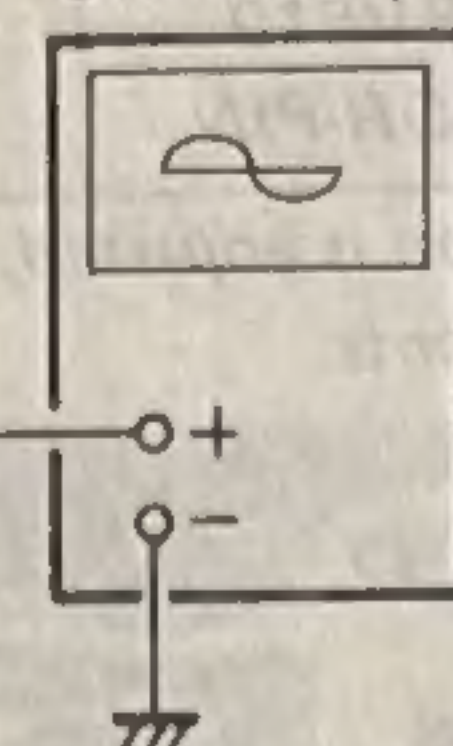
HUE Adjustment

1. Set RV904 (user control HUE VR) at mechanical center.
2. Adjust RV303 so that the hue is optimized.

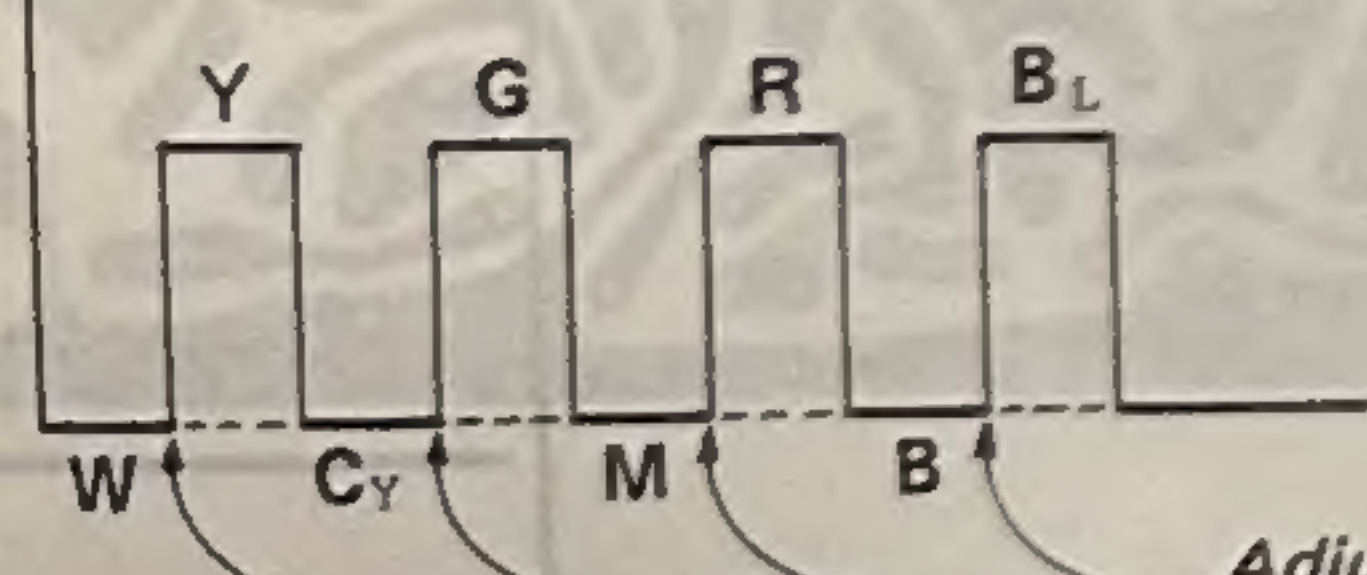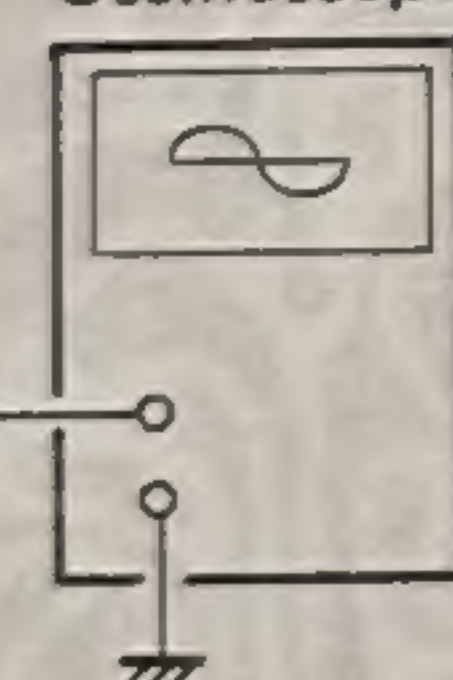**Manual Color Level Adjustment**

1. Set the MODE SW at AUTO.
2. Connect an oscilloscope to pin 3 (output in the blue channel) of the BB-5 connector on the BB board.
3. Set the BRT VR at mechanical center, the CONT VR at 80%, and the HUE and COLOR VRs at mechanical center, repectively.
4. Adjust RV303 and RV304 so that the waveform is linear as shown in the figure.

Auto Color Level Adjustment

1. Set the MODE SW at AUTO.
2. Connect an oscilloscope to pin 3 of the BB-5 connector on the BB board.
3. Set the BRT VR at mechanical center, the CONT VR at 80%, and the HUE and COLOR VRs at mechanical center, respectively.
4. Adjust RV305 so that the waveform is lineay as shown in the figure.
5. Confirm that the saturation does not change in the COLOR and AUTO modes.

Oscilloscope

BB Board

BB-5
3

Y G R B_L

W C_Y M B

Adjust to be linear

BB Board
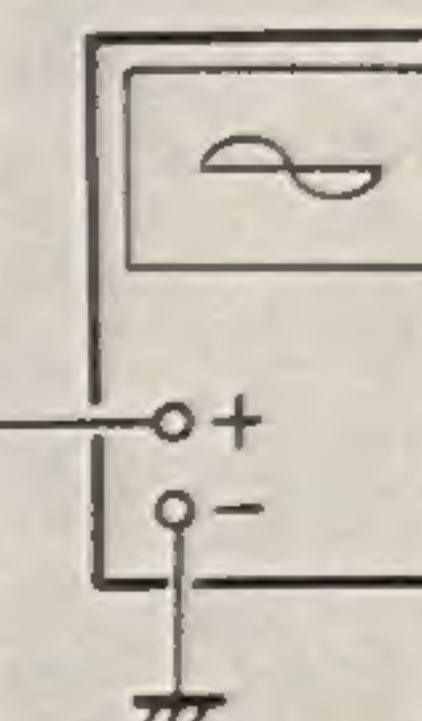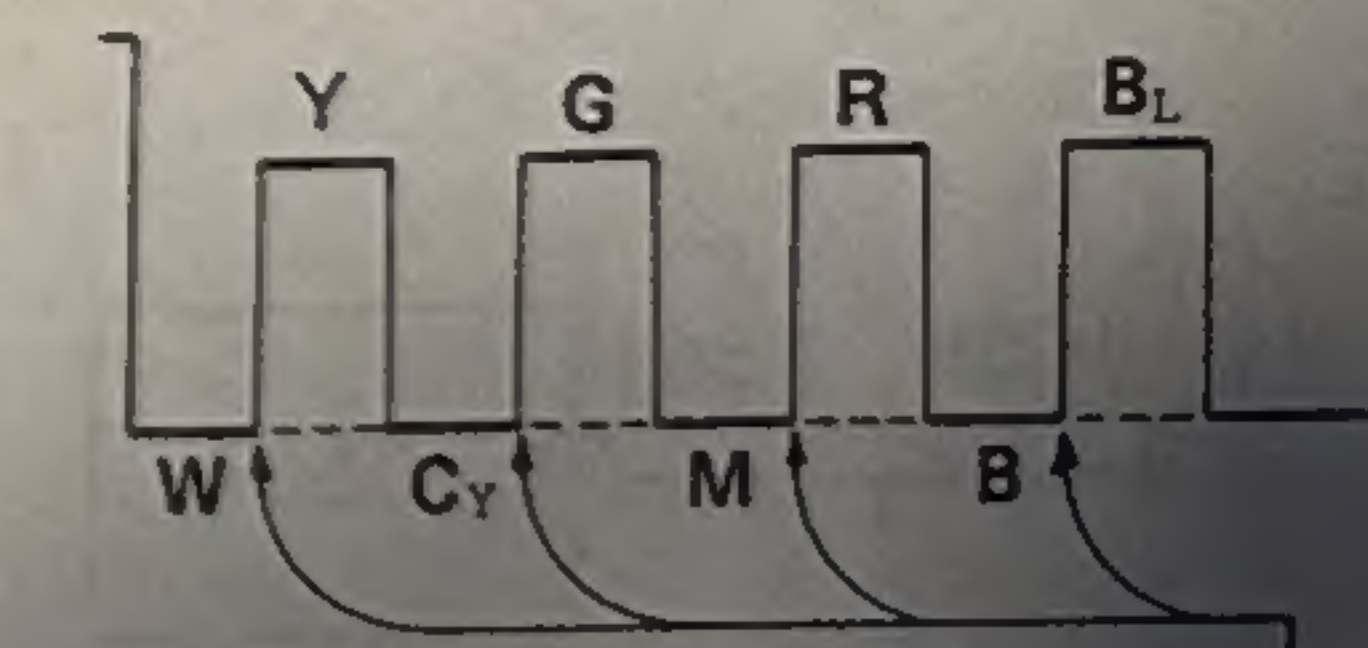
BB-5
3

Y G R B_L

W C_Y M B

Adjust to be linear

APC Adjustment

1. Connect pin 13 of IC302 to GND with a 100kΩ resistor. (Color killer do not operate)
2. Connect pin 1 (HUE) of the BA12 connector to GND and to be appred the color bands on rester. (Color lock has no effect)
3. Adjust RV306 at a position where the color band moves slowly or stops.

T301
Q304
COMB PHASE
RV301
COMB GAIN
RV303
HUE
Q347
T304
3.58 MHz TRAP
BA-12
RV304
RV305
RV306
APC
IC 301
14 15
13
100k
28

3-3. V BOARD ADJUSTMENT

V SIZE and V CENTER Adjustments

1. Supply the monoscope signal to VIDEO IN.
2. Set SCAN at NOR and DELAY at V.
3. Adjust V SIZE 1 (VR507) and V CENT 1 (RV503) so that the upper side of portion A (blacked) on the pattern touches the top edge of the screen and that the lower side of portion B (blacked) touches the bottom edge of the screen.
4. Set SCAN at R and DELAY at NOR.
5. Adjust V CENT 2 (VR504) so that the upper side of the
5. Adjust V CENT 2 (VR504) so that the upper side of the hatch on the monoscope pattern touches the top edge of the screen.
6. Adjust V SIZE 2 (RV505) so the the V size touches 12 frames.

Vertical Linearity Adjustment

1. Supply the monoscope signal to VIDEO IN.
2. Set SCAN at NOR and DELAY at NOR.
3. Perform linearity adjustment by using the V LIN TILT (RV501), V LIN AMP (RV502) and V SIZE 2 (RV505).
4. After linearity adjustment, check the V size and V center. If not linear, perform readjustment.

Under-scan V SIZE Adjustment

1. Set SCAN at UNDER.
2. Adjust UN V SIZE (RV506) so that the white frame area of V SIZE is 161 mm.
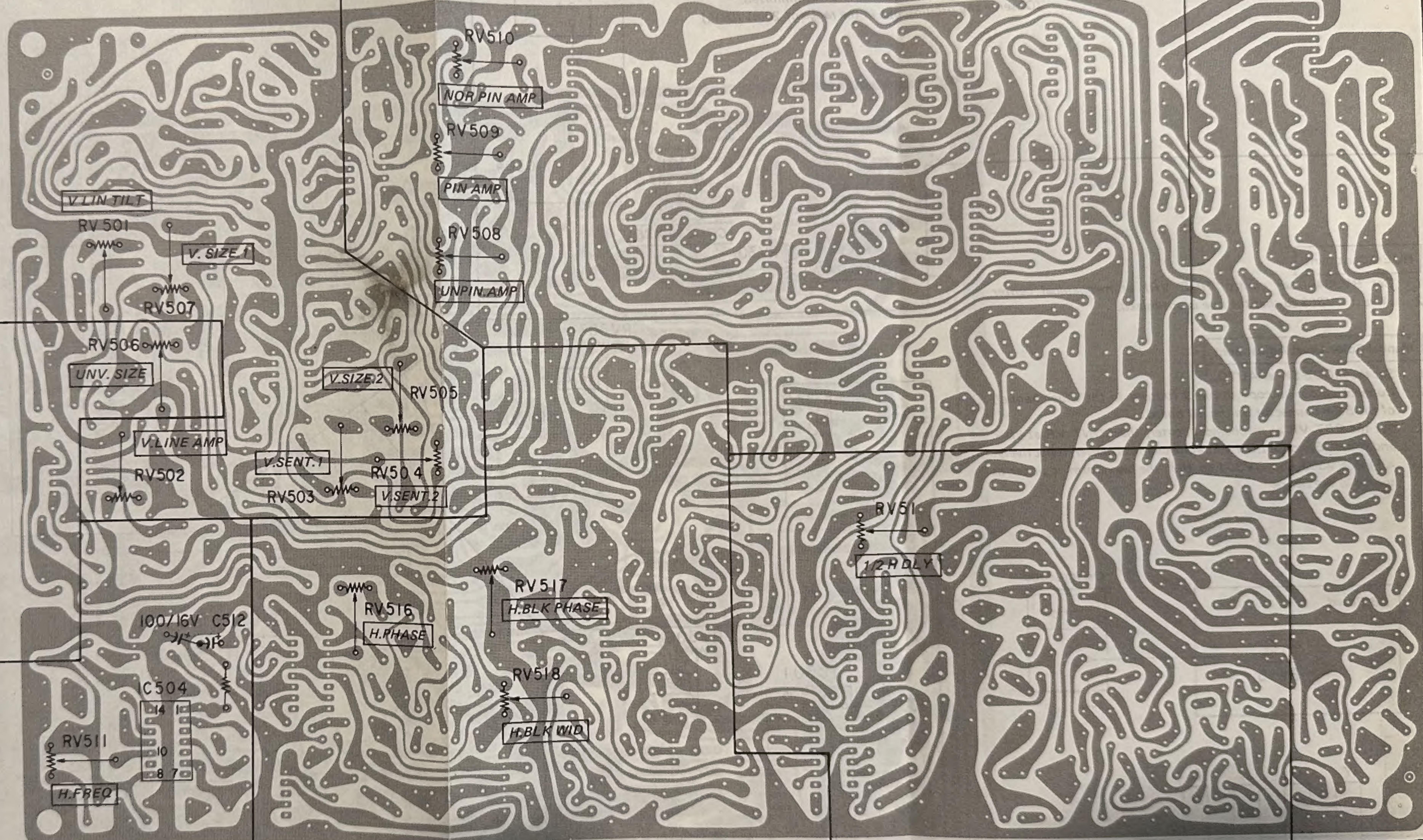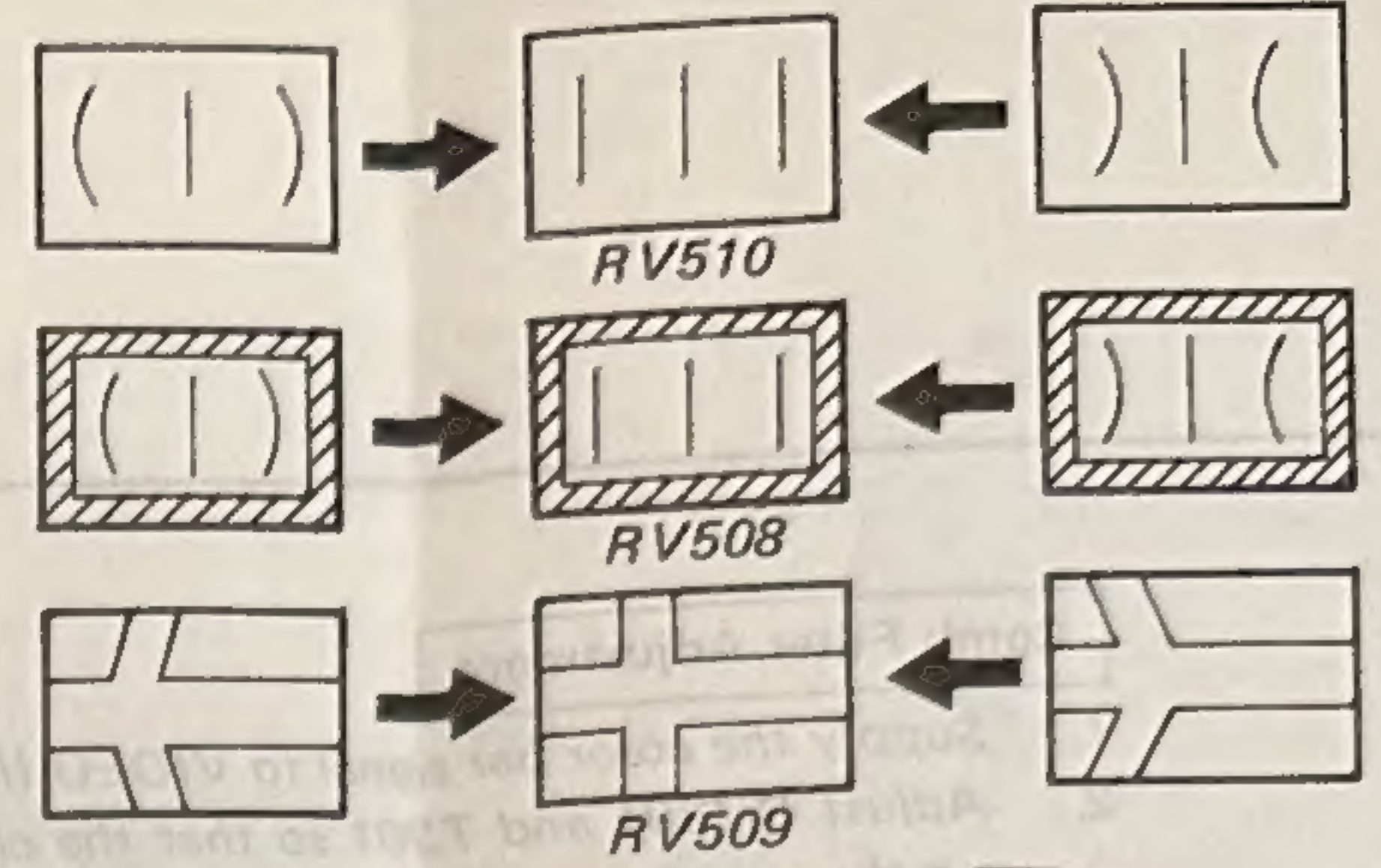
161 mm
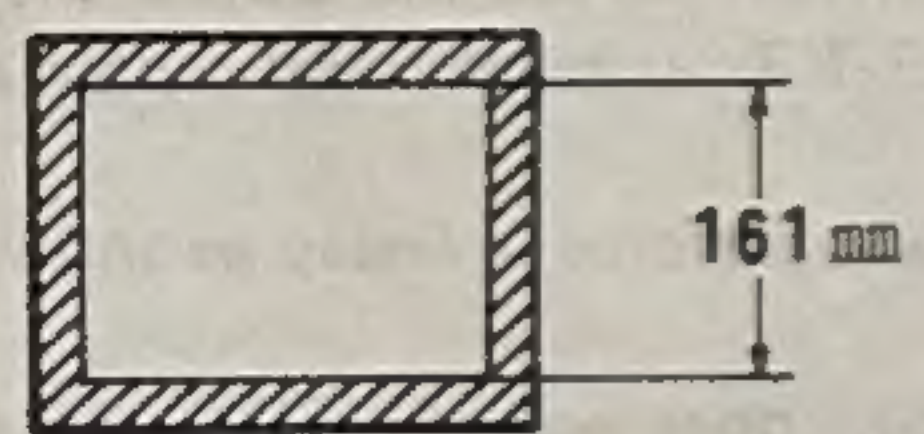
H FREQ Adjustment

1. As shown in the figure, connect the horizontal input pulse of IC-504 to GND and remove the horizontal synchronizing signal.
2. Check that the picture on the screen moves to the right and left by turning the RV511 (H FREQ), and then adjust it at a position where the picture movement stops.

Q 521
C 512 R 561   IC 504
R 585
100/16V
(to ground)
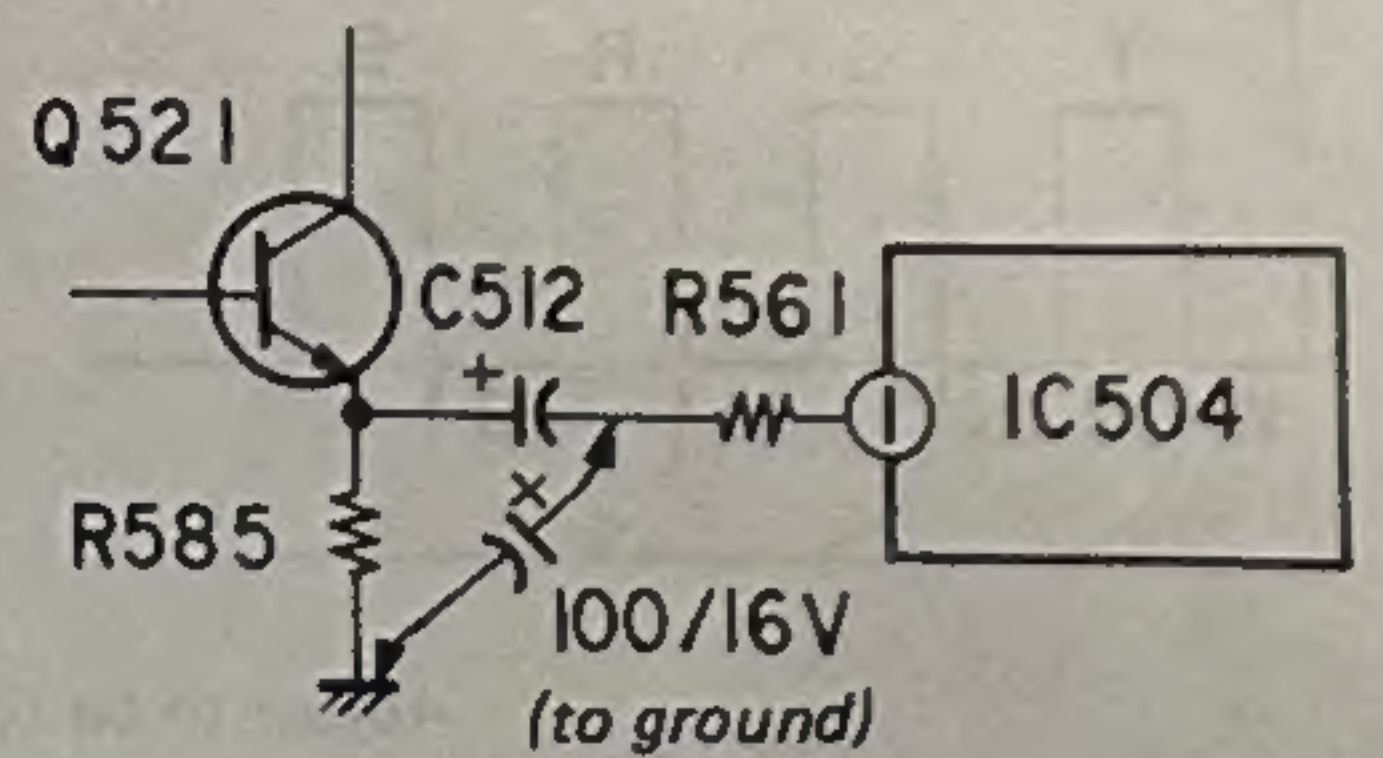
Pin Distortion Adjustment

1. Supply the monoscope signal to VIDEO IN.
2. Adjust so that the vertical lines of both edges are linear in the following modes.

SCAN	NOR	UNDER	NOR
DELAY	NOR	NOR	H/V
ADJUSTING VR	RV510 NOR-PIN	RV508 UN-PIN	RV509 EXP-PIN

3. After the pin distortion is adjusted, perform the H SIZE and H linearity readjustments.

RV510

RV508

RV509

RV510
NOR PIN AMP
RV509
PIN AMP
RV508
UNPIN. AMP

V LIN TILT
RV 501
V. SIZE 1
RV507
RV506
UN.V. SIZE
V.SIZE.2   RV505
V LINE AMP
RV502
V.SENT.1
V.SENT.2
RV503   RV504

RV51
1/2H DLY

RV517
H.BLK PHASE
RV516
H.PHASE
RV518
H.BLK WID

100/16V C512
C 504
RV511
H.FREQ

H BLANKING Adjustment

1. Supply the monoscope signal to VIDEO IN.
2. Set SCAN at UNDER and DELAY at NOR.
3. Adjust H BLK WIDTH (RV518) so that the blanking level appears as shown in the figure.
4. Adjust H BLK PHASE (RV517) and RV518 so that the edge of the blanking level starts shining whitishly at the same time.
5. Adjust RV518 just befor the blanking level edge starts shining whitishly.
6. Adjust H PHASE (RV516) to be A = B, as shown in the figure.

A   B
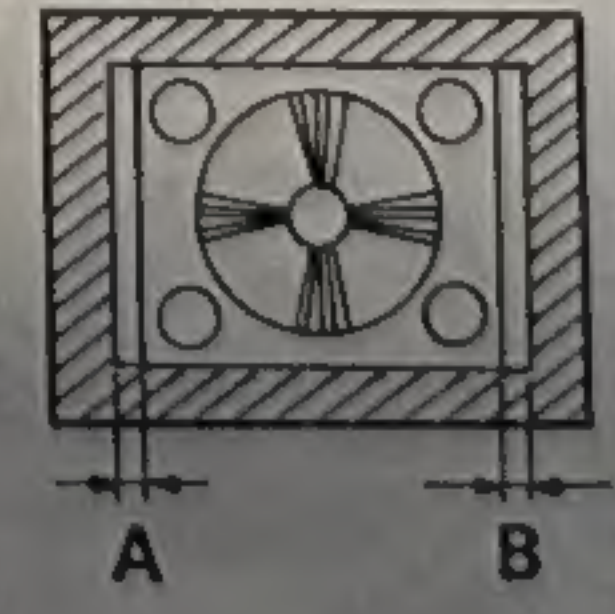
Interlaced Scanning Adjustment

1. Supply the monoscope signal to VIDEO IN.
2. Set SCAN at NOR and DELAY at V.
3. Adjust RV51 (1/2H DLY) at an (interlaced) position where the raster is set at regular intervals.